The Native Flowers of Victoria

PESCOTT

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The Native Flowers of Victoria.

To the memory of

MY FATHER

who, through his innate love of the beautiful in Nature, first led me into Nature's byepaths.

CALECTASIA CYANEA
ACACIA MITCHELLI
Herbert Dicking

The Native Flowers of Victoria

BY

EDWARD EDGAR PESCOTT, F.L.S., F.R.H.S

With Introduction by
PROFESSOR A. J EWART, D. Sc., Ph. D., F.L.S., etc.

Illustrated by Four Coloured Plates and Fifty-six Photo-Engravings

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A. J. Kelp's. photo.] **A Wild Flower Garden at the Grampians.**
Chiefly Leptospermum scoparium and Conospermum Mitchelli.

A. J. Relph, photo.]

A Silver Wattle Tree at Heidelberg.

Introduction.

By Professor A. J. Ewart,

Government Botanist for Victoria, and Professor of Botany and Plant Pathology at the Melbourne University.

NOTHING is more striking to a European botanist visiting Victoria for the first time, than to find so many plants which he has long known as beautiful garden or greenhouse exotics, carefully tended and highly prized, growing wild in profusion in Victoria, and frequently regarded locally as little better than weeds. To some extent this is the result of the human tendency to value that which is rare and to depreciate that which is common, regardless of actual merit. As many of our most beautiful wild flowers are now much more uncommon than formerly, or are even in some cases nearing extinction as wild plants, this cause of lack of appreciation should be less active than formerly. The issue of a book such as the present one is therefore peculiarly opportune, and should not only give those already interested information which they need, but should encourage others to make more use of native plants in their gardens, and perhaps to develop further the beauties which so many of them already possess. A great field lies open for garden lovers in the cultivation of our native plants. In nature, striking artistic effects are often produced by flowers in themselves of no special size, brilliancy, or beauty, simply by

their abundance and harmony with their surroundings.

In gardens where the effects must be produced on a smaller scale, it is necessary to use largely plants whose more striking beauties and peculiarities have been intensified by selection and cultivation. It is obvious that the greater the natural beauty of plants in their wild form, the more promising material they will afford for scientific breeding and cultivation. In this respect it is no exaggeration to say that many of our native wild flowers compare more than favourably with the wild forms of some of the most prized plants of our gardens, and there can be no doubt that the systematic cultivation of our native wild flowers will add many new treasures to those already dear to horticulturists.

In the present work, Mr. Pescott has collected in a simple and readable form much information in regard to our more interesting native plants which is not generally known, and this will enable those interested to select those plants for cultivation which will be most suitable for their purpose. At the same time the book should give added interest and enjoyment to the field rambles of lovers of nature and of wild flowers.

Alfred J. Ewart.

University of Melbourne.

PREFACE.

THE need of a work dealing in a popular and yet scientific manner with the native flowers of Victoria, Australia, has been felt for some time past, especially since nature study has become so general. Information on the subject of a strictly botanical character is obtainable from various publications, but no work has been published, suitable for the general reader, dealing popularly and topically with our wild flowers and plants, with special reference to their cultivation in home gardens. There is no doubt that there are many desirable plants still growing only in natural conditions which should certainly grace our gardens. It is also a fact that many of our native plants are cultivated in other countries that are unknown to our own gardens, except perhaps in one or two special cases.

Until quite recently it was not possible to obtain seeds of that graceful plant Humea elegans except in Europe, yet it has been known as a wild plant locally for many years. To instance this in a wider sense: in 1827 a book was published in England by Robert Sweet, F.L.S., beautifully illustrated with hand-coloured steel engravings, figuring nearly sixty native plants of Australia, every illustration being drawn from plants which were then in cultivation in England. Nearly ninety years have passed since the publication of that book, and it would be safe to

say that not two dozen of these plants are yet in general cultivation in Australia. But fortunately this conditions of affairs is gradually passing away. The teaching of Nature Study in schools, the holding of Nature Study Exhibitions, the increased attention being given in our Botanic and Public Gardens to the cultivating and segregating in groups of our native flora, the propaganda work of Forest Leagues and Wattle Day Leagues are all helping to popularise our native flowers. It is therefore pleasing to note, as a result, that many nurserymen are increasing their stock and variety of these plants, and thus by their catalogues and in other ways, making many desirable plants available to the public that were previously quite unprocurable.

In this connection, it is not out of place to mention the splendid work which is being carried out by the Government Schools' Horticultural Society. This Society controls the distribution of seeds and plants to the schools, and in the season 1913, in addition to its various other activities, the Society distributed over five thousand packets of seeds of native plants to the schools enrolled on its lists.

I have not dealt with the possibilities that might result from the hybridisation of our flora. There is not the least doubt that a magnificent field is all ready for the man who has the time and who will take the opportunity at hand for that interesting task. Already one grower has proved the possibilities in this direction by largely improving some of the Grevilleas by hybridisation. This work will give sure results.

J. A. Sears, photo.]

Eriostemon myoporoides, D.C.

(Long-leaved Waxflower.)

A. J. Relph, photo.]

Calycothrix Sullivani, F.vM.

In conclusion, I must thankfully acknowledge my deep indebtedness to several personal friends, without whose generous aid this book would scarcely have been possible. Especially is this the case with the numerous photographs taken among their native haunts, by means of which it has been possible to make clear, not only the botanical features of many species and genera, but also the beauty and quaintness of their forms; for these I am indebted to the generosity of Messrs. A. J. Relph, H. P. Dickins, F. L. Reeves and J. A. Scars. Mr. Dickins is also responsible for the coloured illustrations which faithfully reproduce the natural colours and form of the typical flowers depicted.

School of Horticulture,

NOTE.—The common names given to the plants are, in almost every case, those which have been selected by the Plant Names' Committee of the Victorian Field Naturalists' Club.

CHAPTER I.

The Native Flora of Victoria.

THE native flora of Victoria, like that of the rest of Australia, is of more than ordinary interest on account of the fact that the major portion of it is strictly Australian—that is, it does not occur anywhere else. The geographical distribution of these plants shows that at one time Victoria and Tasmania were not separated by Bass Strait, a fact generally conceded by geographers; and plants identical or closely related with those of Victoria are to be found both in New Zealand and South America. Even so we have many exclusive species, and it is very interesting to note that most of these uncommon plants are worthy of more than ordinary notice, both to the botanist and the horticulturist.

Their hardy character is worthy of special notice, and should commend them to growers. When the climatic extremes and conditions of Victoria are considered; when, judged by the older-world standard, our soils are poor and infertile, lacking in two very essential plant foods, phosporic acid and potash; when the average shallowness of the surface soil is considered, and yet, when, with all these drawbacks, we consider the luxuriant vegetation to be met with everywhere, the only conclusion that we can come to is that our native flora is one of the hardiest in the world. Further, the vegetation is just as luxuriant

and the flowers equally brilliant on the poor coastal-plain soils, as in rich jungle and alluvial soils in the Gippsland area. The poor coastal sandy plains in East Gippsland, the clay soils of the Goulburn Valley, the rich soils and the sandy pine ridges of the Mallee, the Silurian soils scattered all over the State, these all yield botanic treasures of wonderful form and brilliant hue. Rich soils and poor soils alike, favourable and unfavourable latitudes and aspects, are all possessed of a valuable native flora. And so our plants are thus fitted by nature to be hardy. The foliage, the bark, the seeds, all show this. It is recorded that the seeds of some of our Acacias may be germinated when they are fifty years old, while the Government Botanist, Professor Ewart, has germinated seeds of Goodia lotifolia, which were definitely known to be one hundred and five years old, and seeds of Hardenbergia monophylla (the purple sarsaparilla) were germinated at an age of fifty years.

Victorian plants are obtainable to suit every requirement—useful, beautiful, or ornamental. The use of our plants in the applied arts is now becoming general, and in all classes of designing, as well as in decorating, it is encouraging to lovers of the native flora to know that art workers are enthusiastically taking these as models. In garden work of all descriptions our plants and trees are being used, and it is hoped here to further show that quite a number of plants, which so far have been neglected, are available for various uses in the garden.

The use of Pittosporum undulatum as a hedge plant is generally known, and provided it be cut

back so as to allow the young growth to harden before the frosts come, the plant can be brought by cutting into any limit that the operator desires; and yet few people are aware that in its natural home this plant is a tree often over sixty feet in height. On the banks of the Snowy River in Victoria, and in parts of the adjacent jungles, I have seen magnificent specimens of this tree, and when in full flower the scent was so strong as to be almost overpowering. Then there is the sugar-gum, Eucalyptus corynocalyx, a tree which runs up to one hundred and twenty feet in its wild state; it is rare that anyone has ever seen a garden hedge made of this tree. In a garden in Upper Beaconsfield, there was a beautiful sugar-gum hedge nine years old and about four feet high, always kept well trimmed and cut, and as ornamental as any Pittosporum or Privet hedge.

Of climbing plants, the species of Clematis, Celastrus, and Hardenbergia are useful. We are familiar with the latter under the name of sarsaparilla, which is so fine in the bush in springtime. It is also a plant that improves considerably under cultivation, climbing gloriously up the side of a house or on a fence, covering many feet—a mass of wonderful purple. The Passion Flower of the Snowy River, Passiflora cinnabarina, is also a quick climber, with dark green foliage and beautiful scarlet flowers.

Of ornamental flowering shrubs, the name and variety are legion, and one only has to spend a few hours at different seasons of the year in the Melbourne Botanic Gardens to note the great variety of choice the gardener has. Incidentally it may be

mentioned that these gardens possess one of the finest living collections in the world of the Australian flora.

Such plants as Goodia lotifolia, Eriostemon myoporoides, and the various Prostantheras are well known, but these are only a few out of the hundreds of equally beautiful ones. Thryptomene Mitchelliana, a beautiful pinkish heath-like shrub growing in the Grampians; Pittosporum phillyraeoides, the willow pittosporum, from the northern districts of Victoria, with its delicate willow-like foliage, and its starry lemon-coloured flowers; Calycothrix Sullivani, a lovely pinkish and white Myrtaceous shrub from the Grampians; a large number of Grevilleas—these and many others are well suited for ordinary garden culture, and as flowering shrubs, will equal any that we have under cultivation at the present time.

So far nothing has been said of the various Eucalypts and Acacias; their name is legion. There are many varieties which are suited for garden culture, and probably only two or three dozen varieties may be counted in our gardens. Special reference will be made to these and others in a subsequent chapter.

CHAPTER II.

Growing the Native Flora.

GARDENERS have declared that the difficulties in the way of growing the native flowers are either too great for them to overcome, or that the plants do not make a satisfactory growth commensurate with the labour and care involved. This is certainly a mistake, as the flowers and plants of Australia are no more difficult to grow than those of other places. The hardy character of our flora has previously been referred to; therefore if our plants are hardy it is our business to keep them so. They should neither be nursed nor coddled up, nor given too much attention. Of course the method of treatment of any plant depends entirely on the native habitat and soil-conditions of the plant. For instance, if the home of the plant is in a cool dark jungle, where the soil is made up of the leaf mould of many generations, it would be folly to transport such a plant into the hardiest situation of our gardens, and *vice versa.*

It should be further remembered that a very large proportion of garden plants are either hybridised or improved by sport or seed selection. Such plants are bred into garden conditions and can be more readily subjected to ordinary cultural and manurial operations. There are several ways by which native plants may be obtained. They may be brought from

A. J. Relph, photo.] **Boronia pilosa, Labill.**
(Hairy Boronia).

A. J. Relph, photo.] **Billardiera scandens, Smith.**
(Solid Apple Berry).

their habitat in the wild places, they may be grown from seeds, or else from cuttings.

In removing the plants from the place where they have grown naturally, great care must be exercised in their transport. A small round trowel is best suited for their removal, one that is used for light gardening purposes, being about nine or ten inches long from top of handle to tip of blade. The blade is better round; this can then be inserted three or four times in the soil around the plant until a complete circle is cut, driving the trowel deeply into the soil. The plant may then be lifted out with a nice ball of soil compactly adhering and with the fibrous roots undamaged, which is very essential. The surplus soil may be lightly removed with the fingers, and then the plant with the ball of soil adhering, may be wrapped round with a piece of newspaper or with some nice long soft grass. The paper should not be harsh nor unyielding; if so, it will be well to moisten it first. The plants may, when collected, be packed in a leather bag, or preferably in a box, with grass filling the intervening spaces, in which they can be safely carried for hundreds of miles. Some plants collected in this way were despatched nearly two hundred miles by coach, rail and carrier, and every one grew successfully. It may be said that plants have been removed from the bush and grown successfully without all this trouble. Exactly so! I have had a similar experience, when, for experiment, I simply pulled a two-year-old Acacia verniciflua and an Aster myrsinoides from the soil at Dandenong, severing all soil and fibrous roots. After being out

of the soil for about ten hours they were planted, and are now, after two years, satisfactorily growing and producing flowers. But if this method were followed generally a very poor percentage of growths would result, and it would be an extravagant destruction of plants. The plants thus selected in the wild must necessarily be young and small; such plants whose roots have not grown far into the soil, and thus will not be destroyed by the removal. Nice young plants are best, from two to six inches in height. As quickly as possible after digging up, the plants should be potted into three– or four–inch pots, according to the size of the ball of soil, which should not be disturbed any more than can be helped. Liberal drainage medium should be placed in the pots in the form of small broken pieces of pot or of cinders, a little fibrous peat, moss, or semi-decayed leaf mould being placed on the top of this; then the plants are placed in the pots, and the intervening spaces lightly but firmly filled with a nice light sandy soil. The plants may then be watered and placed in a cool frame with a glass sash or light on top, standing on the ground, with no manure or heating medium at the bottom. The plants are thus sheltered from sun and wind, and are kept at a fairly even temperature. Being thus snugly looked after, and lightly watered when needed, they should soon accustom themselves to their new home, and should root well in the pots. No manure of any kind should be given at any time. The best time for this transplanting operation is in spring or early summer, when the plant is growing after the winter's rest.

If necessary, the plants may be kept in the pots till next spring, when they may be planted out in the gardens; or they may be removed from the pots into the beds when they are rooted and established. If they are planted direct from the bush into the gardens they should be well shaded with light brushwood or leafy twigs for a week or two, and kept well watered, but not wet. Even with all care possible this latter method is not usually a successful one.

Failing the possession of a glass frame, the plants, if put into pots, should be kept in a warm corner, away from winds and draughts, and shaded from the sun's direct rays with a hessian or calico screen. No attempt should be made to lift old plants or plants that have become hard-wooded. Their roots have ramified far too widely and deeply into the soil: and in removing the plant too much root destruction occurs, which, of course, will kill the plant. If it be wished to grow the terrestrial orchids, with which our flora is so rich, the better plan is to mark the spot where the orchids are growing, and when the stem and foliage have died, to simply dig up the tuber and plant it either in a pot or in the garden. These fascinating plants will grow easily when transplanted and always give satisfaction. It must be remembered that most orchids are dormant in summer when the soil is usually very dry. If the same conditions are given to them under cultivation, keeping the soil fairly dry when there is no growth, the plants will thrive well.

The most difficult method of reproduction of the native flora is the growing of cuttings. Many

species, of course, cannot be so reproduced; others will grow readily. Cuttings taken from the plants growing in the wild will rarely grow; they must be taken from evenly-grown cultivated plants, and preferably from plants which have been grown in pots. The cuttings should be taken from the young or half-ripened wood of mature plants, and grown in pots in pure sand and in the glass frames. This method is only to be tried when all other methods of reproduction fail. Eucalypts and Acacias may be grafted on to seedling plants in pots, but it is far easier and it gives just as good results to grow these plants from seed.

The growing of seeds of native plants is a matter that requires a good deal of attention. Generally speaking, the seeds are of two classes: first, those which come up under ordinary garden conditions, and second those which will not germinate owing to their hard impermeable coats, unless some special treatment is accorded to them. To the latter class belong the seeds of many Leguminous or pod-bearing plants, such as Acacias (wattles), Hardenbergia (sarsaparilla), Goodia, Indigofera (indigo), Viminaria (Broom), Hovea, and many others. Naturally, the very large majority of these remain in the soil until a bush fire passes over the country. Then the outer hard cuticle being burned, the seeds will germinate and a good growth results. Sometimes the seeds grow without this burning, but in this case some external action has occurred to destroy or injure the outer coat. Such seeds, then, should be soaked for some hours in water (which has been poured on to

them hot) until they swell; they are then ready for planting.

Some seeds delay their germination period considerably after the time they are ripe. To this class belong some of the Eucalypts, Clematis, Ranunculus (buttercup), and Callistemon (bottlebrush). On one occasion I waited six months before sown seed of the Clematis and Callistemon germinated and grew.

With the exception of the seeds of the hard-coated section, all seed may be sown when ripe; but there is always a certain element of risk in so doing, for if watered too freely they may germinate too quickly and not thrive during autumn and winter. In spring, early in September, is the most suitable time for the seed sowing. If left till later they will suffer from the hot weather and the young plants will not be hard enough to withstand the heat. It is preferable to sow in shallow pots or boxes having a good drainage, and a fine light sandy soil; or they may be grown in sand to which a little peat or good old leaf-mould has been added. No manure is necessary; in fact, if any attempt be made to force them by feeding, the young germinating seedlings will be killed.

The seed-pots or pans should be protected from the sun and wind, but they must not be too much shaded, otherwise the seedlings will become leggy and drawn. This weakens them considerably. They must therefore be given ample light. If the seeds be sown in the open ground a fair proportion of sand should first be mixed with the soil in the place where they are to be sown. For a time, after the seedlings are

through the soil, they may be shaded with leafy twigs and kept moist. If possible, better results will be obtained by potting up the small seedlings when they have four or five leaves in three- or four-inch pots, and then managed in the same way as suggested for the young plants collected in the bush. It should, however, be noted that some plants, notably some of the Hakeas, will not transplant, and these should be allowed to remain where the seed was planted.

In planting out permanently the young plants should have the soil well firmed around the roots, and then watered. It is essential that the soil should be well drained, and that it shall be in such a condition that it shall never at any time be too wet.

The question of suitable soils is one that requires consideration. If plants are found naturally growing in a rich alluvial, or a wet boggy, or a harsh dry sandy soil, then it is only fair to the plant to give it somewhat similar conditions in the garden. But if plants are found growing under varying soil conditions, then this is a matter that does not call for special care. The adaptability of our plants is well known, and with good care almost any soil will suit to grow them in. What is more important than a suitable soil for native plants, is suitable soil conditions. First, good drainage is essential, for the majority of our plants are not accustomed to an excess of soil water, and a fairly dry sweet soil is one of their special requirements. Second, the strict rule should be—neither animal nor chemical manure should be given. An occasional top-dressing with fresh soil, free from manures, with perhaps a little

leaf mould added will be beneficial; or if the soil be at all heavy, a dressing of good sand will be of great value. It is of great importance that the plants shall have a well ærated soil. The soil should seasonably be dug over, and the hoe kept well at work in summer and in dry weather. The digging should not interfere with the root system, and all shallow surface roots should be kept intact. The spade should not be used close to the shrubs or plants. That soil may be lightly forked over, or stirred with a hoe.

The subsequent management and the pruning of the trees and shrubs must not be neglected. It might be argued that in the wild these plants are not pruned: the reply is that no one wishes to prune them in the wild; but in gardens, in order to get the best results, they must be amenable to the ordinary garden operations. If judiciously carried out, and the work done at the right season, the plants will respond readily to any pruning operations. While the young plants are growing they should be pinched or trimmed into a good shape. No dominant growth should be allowed pre-eminence; it should be pinched or cut back to get an even plant. The centres of the shrubs must not be allowed to become too crowded or they will become filled with dead twigs which have died for lack of air and light, and which are a harbour for spiders and all classes of insects.

The actual pruning is done immediately after the flowering season, and there should be no other time for this work. The shrub or plant may be pruned hard back as soon as the flowers have fallen, bringing it back into a good regular and even shape. After

pruning, a watering will be helpful in inducing the buds to break into a good and healthy growth. These remarks refer to almost all classes of plants, including Acacias, Eucalypts, Grevilleas, Prostantheras, Callistemons, Myoporums, and others. Where such plants are grown as a hedge, they may be accorded the usual trimming and cutting given to hedges at the usual time, observing the rule that the best time for cutting back is after the blossom period.

In fern growing the main necessities are shelter from winds and severe sun, and a good supply of water. In the fern-houses a fair amount of light should be allowed; a good fern-house would be completely boarded up to three or four feet from the ground, and then latticed to the top, latticing also the roof. The roof must neither be too open nor too high. If glass and lattice are used in combination, the glass should always be on the roof. A good fernery may be built of unpainted bamboo blinds. The soil should occasionally be stirred and all fallen leaves and foliage removed. Dead fronds should always be cut from the ferns. These, as well as leaves and rubbish on the ground, are a great harbour for slugs and snails which are exceedingly fond of the soft succulent young fronds. The ordinary tree-fern, Dicksonia antarctica, should not be grown out in the sun. If a tree-fern for open garden conditions is required, Alsophila Australis is the best one.

In growing ferns in pots, boxes or tubs, the same conditions of shelter and moisture should be observed; they should be well protected. A fern corner in the garden is always attractive, and provided with shelter

from sun and winds and kept moist and cool, ferns will thrive very well. If the ferns are transferred from their native habitat it would be well to note the natural conditions under which they grow and to imitate those as closely as possible in the ferns' new home.

CHAPTER III.

Boronia and Pittosporum.

THE Boronia, so popular in spring, with its dark brown flowers, yellow inside, and with its very distinctive fragrance, is one of the best known of Australian plants. This species comes from West Australia, and is one of those plants whose botanical name, like that of the Pittosporum, has become happily familiar, requiring no so-called common name. Common names perhaps serve a useful purpose; but in many cases they are limited to a locality, and the same plant has frequently half a dozen common names in as many different localities, while the same common name often does duty for half a dozen plants. The boronias belong to the Rutaceae family, and all members of this order have more or less pungently or strongly scented foliage, caused by the presence of small oil glands or vessels.

There are eight or nine species of Boronia in Victoria, while in Australia there are over sixty, and they occur nowhere else in the world. With one exception—and that species has bluish flowers—all of our boronias have pink flowers. Boronia pinnata is our most distinctive species, being a robust shrubby plant, fairly tall with fine bright and large flowers. It is found in the south, largely in Gippsland. On one occasion I travelled through acres of this showy plant, near the Bemm River in East Gippsland. It

is a far better grower than Boronia megastigma, the well known West Australian species, being more suited to garden conditions, and growing taller and finer. In the Grampians, one of the mountains is called Boronia Peak, in honour of this genus, three species of which are found growing upon its slopes.

Occurring naturally in sandy soils, all Boronias require the same class of soil in garden culture. If the soil be heavy, it should be given a mixing of at least three parts of sand before planting out Boronias. Then, with an ample supply of water in summer, and with a minimum amount in winter, they should thrive well. The easiest way to kill a Boronia is to give it manure, and so to merit success, all manures should be withheld.

The genus Eriostemon also belongs to this order. This class of plants is so called because of the woolly stamens occurring in the flowers first described. One species, Eriostemon myoporoides, which is often named Eriostemon neriifolius, is a fairly common garden shrub, and one of good distinction. In season it bears masses of pinkish flowers and it remains in bloom for some weeks. Of the close upon two dozen Victorian species, many more are very worthy of attention. It is hard to select the best varieties among so many good ones. Eriostemon Crowei has large bright pink flowers. Eriostemon trachyphyllus is a goodly sized tree, with white flowers growing in the Snowy River district. Eriostemon correifolius (Asterolasia Muelleri), is a charming yellowish starry form growing in the south and east of Victoria. And lastly the wax flower of the Bendigo district must not

be passed by. This is Eriostemon obovalis; and in places on the auriferous and silurian hills of the central districts, it quite clothes the ground with dainty masses of pink blossoms. For garden shrubs, the Eriostemons are unrivalled, for they produce their blossoms in great profusion under cultivation, and will thrive even in stiff heavy soils. A sunny aspect improves their good qualities.

Included in the same order as the Boronia are the so-called native fuchsias which are not fuchsias at all, for the fuchsia belongs to an order far removed from this one. The generic name is Correa, given in honour of a Spanish botanist of that name who wrote about this order of plants. While the Correa is popular and well known, very little has been done to bring the different species into general use for garden purposes. Yet all the local species are hardy and attractive. There are four species, the ordinary one being Correa speciosa with its variable scarlet and green, green, or yellowish flowers. The height of the plant, too, is variable, ranging from one foot to twelve or fifteen feet. Correa alba, the white flowered species, has clusters of white starry flowers and is quite charming as a garden plant. Correa Lawrenciana is a tall shrubby species—almost a tree. It is a mountain plant, growing in the moist creek and forest gully areas and bearing green flowers. A crimson form is very rare. Correas thrive best in good loamy soils, and give the surest success when given partial shade. A good water supply at flowering time is very helpful. These, with the Tetrathecas and the Epacris, give charming results

A. J. Relph, photo.]

Eriostemon obovalis, Cunn.
(Fairy Waxflower.)

A. J. Relph, photo.]

Phebalium dentatum, Smith (Eriostemon Umbellatus, Turc.)
(Umbellate Phebalium).

when grown massed together, in a small natural clump.

Another plant of this order is Zieria Smithii; it is a good shrub, having dark green shining foliage with clusters of small white flowers or sometimes faintly pink. This is one of the popular shrubs of the East Gippsland district. Two common yet beautiful flowering plants are Tetratheca ciliata and Tetratheca ericfolia. They are low-growing plants, known as "Pink-eyes," sending out long sprays of magenta bells in spring and early summer. These plants grow readily in gardens and flower most profusely. Although frequently called boronia, they do not belong to the same order as the boronia, but to one closely related to it.

The Pittosporum genus is known to all gardeners; and Pittosporum undulatum, the broad leaved variety, has been grown as a hedge plant for many years. The generic name means pitch-seed, and it is suitable owing to the glutinous sticky nature of the substance surrounding the seed. This shrub makes an excellent hedge and will stand pruning to any extent. It also grows to a fine shrub or tree and its creamy flower clusters emit a very sweet and strong fragrance. In its native state it grows to quite a tall tree. The northern district species, Pittosporum phillyræoides, the weeping or willow-like Pittosporum, is a fine drooping shrub or tree. With long narrow and dark green leaves, and with masses of sweet-scented cream flowers, it is an object of beauty anywhere.

Pittosporum hedges are well known; there being several species grown for that purpose. The one that is native to Victoria, Pittosporum undulatum, has fairly large and broad green leaves, slightly undulate or wavy at the edges. The flowers, as above mentioned, are very sweetly scented. When young, and when the growths are young, it is very subject to frosts. The young plants thus require certain shelter and later on, when pruned, the work should be done at the close of the frost season.

The order to which these plants belong—the Pittosporeae—also owns some dainty climbing plants. Billardiera scandens, and two other allied species, are sparse growing climbers with delicate cream or yellow bell-shaped flowers. One species has bright blue fruits. Another is Marianthus bignoniaceus, a still more dainty bell-shaped climber with charming pale orange-coloured bells. It is plentiful along the water courses of the Grampians, where it flowers in great profusion. A really dainty plant, still of this order, and one which always attracts notice on account of its open and brilliantly blue flowers, is Chieranthera linearis, the "finger-flower." The flowers are nearly one inch across and the gentian-blue colour is very striking. It is a low-growing plant, favouring harsh or stony situations in the warmer parts of Victoria; and in the north-eastern district, particularly near Seymour, it is especially fine in spring. The plants are from a foot to eighteen inches in height, with slender stems often with five or six flowers.

Epacris
impressa

Another plant of the Pittosporeae order is Bursaria spinosa. This grows as a spinous shrub, fairly abundant in all parts, with numerous creamy-white small flowers borne in dense panicles, and flowering all through the summer. It is sweetly scented and attracts large numbers of nectar-loving insects, and is known as "Sweet Bursaria." Because it has a good show of bloom late in December, it is called in many localities the "Christmas bush."

This is, strangely, one of the shrubs that improves considerably under cultivation. In its native habitat, although it flowers profusely and well, it is more or less an untidy and irregular shrub or small tree. But when planted in a shrubbery, or as a lawn specimen, it responds well to the care given to it, and becomes a very shapely bush.

CHAPTER IV.

The Legumes.

NEXT to the Composites, the Legumes or order of leguminous plants, is the largest and most widely distributed in the world. The legumes are so called because the word means a pod-bearer, and in this order the seeds are carried in a pod, with two valves, which opens on the side opposite to that on which the seeds are fastened. The order is divided into several sub-orders with regard to the shape of the flowers. One section has flowers shaped like those of the sweet-pea, and another has flowers more or less regularly and evenly shaped. In the pea-flower section the curved petal at the bottom is, from its shape, called the "keel;" the top ones the "standard," and the side ones, also from their shape, the "wings." There are considerably over one thousand species of legumes in Australia, nearly two hundred being Victorian. A large number are small-growing insignificant plants or else they have not a flower system of any note. They range from trees down to herbs, some few being climbing plants. The acacias or wattles belong to this family, and they are dealt with in a separate chapter.

The common, so called, Sarsaparilla is a representative of this family. It is not a true sarsaparilla, as those plants which are noted for the medicinal value of their roots, belong to the lily family; at the

A. J. Ralph, photo.] **Correa speciosa, Andrews.**
(Green Correa.)

F. L. Reeves, photo.]

Swainsona Greyana, Lind.

(Pink Swainsona)

same time the thick roots of this species, Hardenbergia monophylla, the "Purple Coral Pea," have a certain medicinal value as a blood purifier. The rich purple flowers come so profusely in spring as almost to hide the foliage. The plant grows in the driest situations possible, and thrives wonderfully, scrambling up rocks and saplings and climbing over logs and fences. It requires constant support, and if allowed to train over a rough trellis, or on a wire-netting framework, it soon covers quite a good area with its growth. It likes the sun; and planted on the north side of the house, it seems to revel in its bright and sunny position. In such places, particularly in a clay soil, and free from manure, it rambles and grows luxuriantly.

A near relation of this, Kennedya prostrata, the "Scarlet Coral Pea," often called "the postman," a scarlet-flowered trailing plant common in many places, gives a brilliant patch of colour in the spring and should succeed well as a rockwork plant. The more robust species Kennedya rubicunda, with dark red flowers, is a good climber for covering up fences or trailing over trees. It is common in East Gippsland.

The most extensive genus of legumes in Victoria is Pultenaea. All of the species but one, have yellow, brown, or dark red petals, some species having a combination of the three colours. The one exception is Pultenaea rosea, the "Rosy Bush Pea," with heliotrope-pink petals, which is one of our rarest plants. It is found only in Victoria, and here only on the summits of Mounts William and Rosea in the Gram-

pians. This latter mountain, which is 3,250 feet in height, receives its name from this plant. There it thrives well, growing in the moist springy turf and following the water-courses for some distance down the mountain side.

This species is now coming into cultivation, and being of such uncommon beauty, it is worthy of more than ordinary notice. At Mount Rosea, it grows only in the boggy turf, and along the narrow mountain water courses. Hence it seems to require ample moisture; at the same time, growing as it does in sandy soil, efficient drainage and sweetness of soil conditions must be provided. At the same time, it ultimately may prove to be as adaptable as many of its congeners; and if so, then we will be in possession of a lovely shrub for all garden purposes.

Another genus, Dillwynia, might readily be confused with the Pultenaeas. The flowers of the Dillwynias are also conbinations of yellow, brown or red-brown. Indeed, botanically, the difference between the two genera is very slight and that is in the almost hidden structure of the flower. Dillwynia ericifolia, the "Heathy Parrot Pea," is the common yellow and red-brown flowered plant with heath-like foliage which is met with frequently in spring.

The Native Hop, or one of the plants called native hop, is a legume. This is one instance of the confusion caused by common names. In this case a plant or genus, Dodonea, has been so called on account of the similarity of the fruit to that of the hop-plant. Another plant, Goodenia ovata, has also been termed

native hop on account of a tonic bitter principle which it contains. Both of these plants belong to different orders, and neither is a legume. The native hop of the legume family is Daviesia latifolia; this is a broad-leafed plant and has brown and yellow flowers. An exceptionally bitter principle pervades the whole plant and it has been used as a tonic for both stock and humans. In the latter case, a tea decoction is made. With stock this plant is reputed to be an effective remedy for pleuro-pneumonia. Cattle and horses are very fond of it, bitter as it is, and I have known a horse to refuse the best of feed when this plant was available. One of the most beautiful shrubs of this class is Hovea longifolia; it carries flower-heads of pale heliotrope blue, with fine, solid, dark green foliage. It is rare and is only found near water in the cooler districts.

Goodia lotifolia, called the Golden Goodia, has very large racemes of yellow flowers, intermingled with its decorative trifoliate leaves. It is hardy, a quick grower, and a fine shrub for any garden. It is decorative at any season of the year, but when in full flower in spring time, its masses of golden yellow flowers, which completely cover the foliage, well justify its common name. This is one of our hardy shrubs, growing and thriving in almost any soil. It very frequently throws out strong vigorous growths from the stem near the ground. When this occurs, to prevent overcrowding, the older growths, that have flowered so well in previous years, may be cut out altogether.

The well-known indigo, Indigofera Australis, also makes a good plant with its bluish pink flowers. It is showy for a considerable time in the spring and summer. Any location in the garden suits the Indigo, and it always responds better to a hard pruning immediately after flowering time.

The Swainsonas, or the "Darling Peas," have been cultivated in gardens for some years. These are usually varieties of the New South Wales and Queensland species, Swainsona galegifolia. One species, Swainsona Greyana, which is very similar to the preceding species, is recorded from Northern Victoria. It is one of the plants collected by Major Mitchell during his exploration tour in 1836. It is tall, about 3 to 5 feet in height, bearing fine racemes of pink flowers almost through the whole year, and is thus one of the most hardy and desirable of native shrubs.

Being hardy, the Swainsonas are useful in dry soils, and particularly in sandy soils. They flower for an extended period, sometimes well into winter. As the older growths harden and become aged, they should always be cut right out, allowing the strong young growths to come away from the crown.

There are four Oxylobiums, all with bright orange-yellow flowers, and all pretty and distinctive plants. The best is Oxylobium ellipticum from East Victoria.

Viminaria denudata, "Golden Spray," is a tall sparse-growing leafless shrub occurring in moist soils in the cooler parts of the State. It produces an abundant profusion of small yellow flowers, the weight of which causes the slender stems to droop in

A. J. Relph, photo.]

Silver Wattle at Hurstbridge.

A. J. Relph, photo.] **Acacia dealbata, Link.**
(Silver Wattle.)

a weeping fashion, giving the shrub a very graceful appearance. It is somewhat like one of the small-flowered English "brooms." The seeds of this plant possess very hard coats and, like those of the acacias, remain ungerminated in the soil for many years.

CHAPTER V.

The Legumes: The Wattles.

THE Wattle (Acacia) is the national flower of Australia, and Wattle Day has made the cult of this flower both popular and world-famed. Victoria is well endowed with Wattles, nearly seventy species being found here; they may be found in all corners of the State, and nearly every species is worth a place in the garden. The Wattles show considerable variation in form and size, some being very tall wide-spreading trees, others being low, almost trailing bushes, rambling along among herbage and low shrubs, only a few inches from the ground. The name Wattle is purely an Australian one, and has been adapted from the practice of "wattling," or the weaving of the young pliable growths of these shrubs in the early days, to make fences and even houses—"wattle and daub," or "wattle and dab," as the method was called. The growths were intertwined and interwoven, afterwards being thickly smeared over with mud and clay. The houses were then roofed over with bark from the gum trees. In some parts of the world these plants are called "Mimosa;" this is wrong, as the Mimosa is a distinct genus from the Acacia, which is the botanical name of the wattles, although belonging to the same family, and some of the species even showing great similarity. There are no Mimosas in Australia. It is a pity, too, that some

of our Acacias are called Mimosa in Great Britain and on the Continent; it is to be hoped that this term will be dropped, and that these plants will be known by their correct name of Acacia, or by the more happy Australian term "Wattles." In some localities distinct species of Acacia are known by various names, such as Blackwood, Myall, Lightwood, Hickory, Mulga, etc.; but generally these terms are too vague to be reliable, and sometimes the same species has various common names which are reversed and given to other species in other districts. Frequently Acacia melanoxylon, the "blackwood," is called the "lightwood," a name which is more often given to Acacia implexa.

The Acacias present many forms of flowers and of foliage. They may be separated into two main groups, according to the forms of the foliage, one having fern-like or feathery foliage, and the other having flattened or rounded "leaves." These latter are not true leaves, but are flattened or rounded leaf-stalks called phyllodes. The former section is known as the "bipinnate" section, in allusion to the leaflets doubly forming rows in a feather-like arrangement.

All wattles have the bipinnate leaves when they are young plants, but sooner or later the phyllodinous section lose this form and the leaves develop into phyllodes. Examples of these may be recognised in the Golden Wattle, which is a "phyllodinous" wattle, and the Silver Wattle which belongs to the bipinnate section.

Then again, Wattles naturally fall into two groups according to their flower formation. The flowers are

usually very small and, when crowded together as they usually are, occur in two forms. First, the form is that of globular heads or balls, like the Golden Wattle; and second, the flower-heads assume the form of round elongated spikes, as in the Coastal Wattle, Acacia longifolia Sophorae. The flowers differ in colour very much, and all shades may be seen from white, as in Acacia melanoxylon, to deep golden yellow, as in Acacia pycnantha.

Acacias produce a most abundant crop of flowers. When it is considered that each golden fluffy ball—"dear little downy heads of gold," as Jennings Carmichael lovingly called them—contains from four to twenty small flowers, and when the many golden balls on each tree are thought of, it will hardly be possible to conceive the immense number of flowers on a single tree. These flower-heads are rich in pollen, and they also carry a small quantity of honey, so that the wattle-trees in flower are of great use to the bees.

Wattles usually produce an ample suppy of seed, but the quantity of seed is very small in proportion to the number of the flowers. If the plants, too, are growing out of their latitude, or in a climate much different to that of their native habitat, they do not produce seed freely. All wattle seeds are extremely hard and will not readily grow unless the hard seed coat is broken. The easiest method of breaking is to pour boiling water over the seeds. No fear need be entertained that the boiling water will injure the seeds. The late Professor Tate, of South Australia, once *boiled* some seeds of the Golden Wattle for seven minutes, and in three weeks' time every seed

J. A. Sears, photo.] **Acacia pravissima, F.vM.**
(Ovens Acacia.)

J. A. Sears, photo.] **Acacia calamifolia, Sweet.**
(Reed-leaved Acacia.)

had germinated. This hard covering also protects the growing portion of the seed from destruction and decay. It will often be found that where land has been cleared of a gum-tree forest, either by man for cultivation purposes, or by a bush-fire, that a crop of wattle seedlings at once springs into growth. There had been no wattles in that particular area for many years, and the question is often asked as to how the seeds came there. They had remained dormant in the soil for many years, probably for over fifty years, when wattles were then growing there; then some heating influence came along, destroyed the hard covering, and caused the seed to at once spring into growth.

Thus, Acacia seeds may frequently be found buried in the soil of forests, where no Acacias are growing. As a proof of the powers of these seeds to retain their germinating powers after many years, Professor Ewart, Government Botanist of Victoria, has in many instances successfully germinated Acacia seeds between thirty and sixty years old, and, in two instances, seeds sixty-seven and sixty-eight years old.

The Wattle Day League of Victoria has issued a list of twenty-four varieties of wattles suitable for planting in parks and gardens, and of these, none of which have prickly foliage, thirteen occur in Victoria naturally, and one has since become naturalised here.

It is generally agreed that the finest and most beautiful Wattle is the Golden Wattle, Acacia pycnantha. Its beautiful flossy, golden balls, which are produced in such masses as often to hide the

foliage, make it one of the most gorgeous sights in nature. And when the hills are covered with masses of the trees, they are veritable hills of gold. It thrives, too, on hills and uplands where there is not a particle of surface soil, and where the clay and stones in which it grows are hardy, dry, and sun-baked in summer. It grows wonderfully in the mining districts of the State, especially where the surface has been turned over, time after time, in the search for gold.

Acacia retinodes is another beautiful tree, the flowers being a paler shade than the Golden Wattle. It has a very desirable quality, that of a very extended flowering period. It has frequently been known to be in flower for nine or ten months in succession.

Acacia leprosa is one of the most decorative and artistic forms of Acacias. It has light weeping stems and twigs, with long narrow phyllodes, and along the growths are distributed the fine lemon-coloured heads of flowers. It is not uncommon to find some of the drooping sprays over three feet long. To see this tree at its best one needs to visit the cool glens and creeks in the southern part of Victoria, where the trees fling their pendant masses of bloom in great richness in the spring time.

Acacia melanoxylon, the blackwood, is a Wattle not generally seen in gardens, yet its pale delicately-coloured flowers, set in dark green foliage, form a very beautiful contrast. This is one of the timber trees of the Acacia genus; and the "fiddle-back" form is one of the most beautiful of all Australian timbers.

The lightwood, Acacia implexa, is another of the light-flowered section of Acacias, and is frequently to be found in coastal areas.

Acacia salicina, the "willow wattle," so called from the similarity of its foliage to that of the willow, is a very decorative species. Its flowers are bright and yellow and the foliage at times assumes a glaucous or bluish colour.

Acacia acinacea, is one of the best of the shrub Wattles. In the northern districts, particularly in the clay soils of the Goulburn valley, it grows in symmetrical bush or shrub form, the flower-masses being very abundant.

Acacia myrtifolia, the myrtle-leaved Acacia, is a fine type of the low bush form, with pale lemon-coloured and fragrant flowers with dark green phyllodes. From its habit of furnishing ample growths well out from the base of the plant, it should make a very good garden hedge plant.

Of the Wattles with prickly foliage, the "Kangaroo thorn," Acacia armata, is the best. This is the prickly Acacia that has long been used for hedge purposes. It is extremely variable when grown from seed, the resultant seedlings showing all shades of colour from pale lemon to deep orange. Notwithstanding its objectionable thorns, this is one of the finest of Acacias, and a good hedge of it, well kept, is a most desirable adjunct to a garden.

There are only four forms of the bipinnate Acacia native to Victoria, two of which, the Black and the Silver Wattles, are well known. Acacia dealbata, the latter, is so called from the silvery appearance of

the foliage, and it flowers densely in early spring. Acacia decurrens, the Black Wattle, has paler flowers and blossoms in summer. There is a variety of Acacia decurrens called normalis, or the Sydney Green Wattle, which is indeed very beautiful—the delicate fern-like foliage, the dense panicles of fluffy golden flowers, so crowded as to hide the ball-shape of each individual head, the strong upright and yet shapely growth, all combine to produce one of the most handsome of Wattle trees. This variety is not a native of Victoria, but it has been planted in various country localities for its bark, and it is now naturally reproducing itself by means of the fallen seeds.

Acacia discolor, the Sunshine Wattle of East Gippsland, has pinnate foliage, the leaves being very large and the flower-heads large and scattered; and Acacia Mitchelli, from the Grampians, is a low growing shrub with small pinnate leaves.

Of the Wattles producing the flowers in long cylindrical spikes, instead of in globular heads, the two most popular are Acacia linearis and Acacia longifolia. There are several others, notably Acacia Howitti, Acacia alpina, and Acacia Dallachiana—all worthy of a place in gardens.

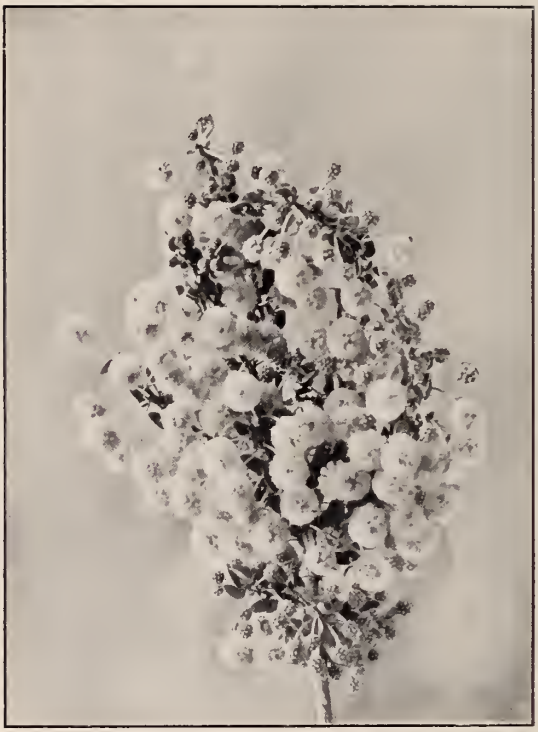
Acacia linearis is very free-flowering and has pale-coloured flowers.

Acacia longifolia is very popular; it has several varieties, and these vary in phyllode structure considerably. Variety mucronata, from the Grampians, has very narrow foliage; variety Sophorae, the sea-coast form, has broad foliage, large flower spikes, and is of a low-spreading habit; and variety floribunda has broad phyllodes and large and abundant flowers.

[*A. Scars, photo.*]

Acacia leprosa, Sieber.

(Leper Acacia.)



A. J. Relph, photo.]

Acacia armata, R. Brn.
(Hedge Acacia).

One species not commonly known, Acacia glaucescens, one of the Myalls, is deserving of more than ordinary notice. Mr. J. H. Maiden, F.L.S., in his *Forest Flora of New South Wales,* says of this species: "It is one of the most lovely of all Wattles, and therefore worthy of cultivation in large gardens." It certainly is a most beautiful species, with pendant, glaucous or sea-green coloured foliage and long abundant flower-spikes. The flowers are wonderfully fluffy and are borne in dense masses on the tree, which is often very tall. It is hardly possible to conceive a more handsome and decorative Wattle, particularly when in bloom.

Acacia verticillata is one of the prickly type of wattles, the short thorny phyllodes being arranged regularly around the stem. The cylindrical flower spikes are short, and pale lemon coloured. This wattle is much appreciated as a pot plant for English conservatories. It seems unusual for an Australian Wattle to be considered as a conservatory or a hothouse pot plant. Yet in England, Europe and America, they are popular house plants, making a fine show of bloom in the spring time.

The Wattles are all hardy and need to be grown under hardy conditions. They will thrive satisfactorily with a minimum water supply; they must have no manure of any kind, and they succeed best in a well-drained soil. They may be cut back and pruned without any fear of damage if pruned after flowering-time, and the fine resultant growth will be a surprise to the operator.

CHAPTER VI.

Daisies and Everlastings.

EVERYBODY knows these flowers well; they are typical flowers of the great and important Compositae or Composite family, so called because what seems to be a flower is really very many small flowers packed closely together in one composite or collected flower-head. These small flowers are called florets: they are usually insignificant, and yet, if closely examined, they show a perfect flower structure. Each floret is capable of producing seed, and that is the reason why we get so many seed from one "flower" of an Aster, a Zinnia, or a Dahlia. The florets are packed closely together—sometimes there are very few florets and sometimes a great number—and usually there is an ornamental coloured row of large petal-like structures which are not really petals, but what are called bracts or ray-florets. Thus what appears to be a single Dahlia, a single Daisy, or a single Sunflower, is really a head of many flowers collected closely together, with the outside row of florets each having an enlarged structure like a petal. The "double" forms of these flowers have these ray-florets developed so that each individual flower has one, as well as the outside row.

The Composite family is a very extensive one, which is represented in every country of the world;

there are hundreds of species in Australia, and in Victoria we have considerably over two hundred. Sometimes they are tall trees, sometimes fine sturdy shrubs, and often they are low-spreading herbs. There are only two Composites that here assume the form of trees: one is the musk-leaf or musk tree, botanically known as Olearia argophylla, and sometimes called by botanists Aster argophyllus; the other is the blanket-leaf tree, known as Bedfordia salicina. These are two elegant trees, the backs of the leaves having a whitish covering. In the musk tree it is very close and does not appear prominently; it gives the leaves a silvery appearance; but in the blanket-leaf tree the backs of the leaves are covered with thick, white, woolly-like hairs, giving the leaves a blanket-like appearance. On account of this hairy vestiture, these trees should not be grown where smoke or dust is prevalent. These would settle on the foliage, making the tree have a perpetual dirty appearance. They prefer coolness and shade, and a moist soil.

The genera of this order that are, on the whole, the most attractive in appearance, are those which comprise the plants familiarly known as Everlastings, the genera names being Helichrysum and Helipterum. The common yellow Everlasting, so much grown in gardens, is Helichrysum bracteatum. It is a native of every State of Australia. The original colour was yellow, but seed variations or sports have occurred, and now we have Everlastings of all shades and colours. It will often be noticed that one plant, supposed to bear flowers of a certain colour, produces

a flower-head of quite a different colour to the original or proper one. This is known to botanists as "bud-variation," or to gardeners as "sporting" or a "sport." It is often possible by saving and planting the seeds of these flowers, or by taking the shoot on which they grow and grafting or layering it, or by growing it as a cutting, to obtain permanent plants of the new colour. This is one way by which many of our beautiful garden flowers have been produced. So far no one has been able to give a sufficient reason for "sports," and we are really not much further advanced than the old Cornishman's explanation, "Where 'tis, there 'tis." Some people credit the bees with the work, "the bees coloured the flower," they say. The bee is certainly a clever little insect, but this work of bud-variation cannot be credited to it, clever as it is. Certainly the bee, in carrying the pollen from one flower to another flower of the same family, will cause the seed when grown, to give plants with flowers of another colour. This is called hybridising. But the bee can never change the colours of the flowers on the plants themselves.

One of the most beautiful Composites is Helichrysum elatum. This plant has not yet been brought into general cultivation. It is also a native of New South Wales and Queensland, and in Victoria it is found only in East Gippsland. It is a tall shrubby branching plant, about eight or ten feet in height, with woolly-backed leaves, similar to those of the blanket tree, and in early summer it is covered with large flowers, pure silvery white. When moving in the wind, with the sunlight playing on the shrub, it

appears to be invested with a glorious silvery sheen on every part.

There are other shrubby forms of this genus, and they, too, have a beauty of their own. Two of them are found as Alpine shrubs, only in the north-east of the State: that is, in the Alps and Buffalo mountains. They are botanically known as Helichrysum baccharoides, and Helichrysum rosmarinifolium. Both are handsome shrubs, the latter especially so. The flower-heads range in colour from white, pink, to red in the latter; and in the former they are yellowish. Quite a number of our Everlastings are of uncommon beauty: Waitzia corymbosa, from the Mallee district, is one of a glowing yellow, with fine large flowers; another, Ixodia achilleoides, a pure white species found growing in the Mallee and the west coastal district; and many others are worthy of notice.

The Aster genus is well represented, too. This is a very widespread section. It assumes many forms, and to those who are only familiar with the Asters grown in gardens, our native Asters seem very unfamiliar. One has already been mentioned—the Musk Tree. Several other shrubby forms, mostly with white flowers, are common everywhere. Most of them grow in the Wimmera and Mallee districts, and brighten up those places considerably in springtime. Aster stellulatus, one of these shrubby forms, has already been introduced into gardens; its silver-backed leaves, its masses of pure snowy flowers, the pendant habit of the bush when in flower, all combine to give a pleasing effect. Another species, Aster

myrsinoides, is growing in favour, and it is now advertised in English catalogues.

One of the synonyms of Aster is Olearia, and plants of this genus are often so termed. Thus the last-mentioned plant may also be Olearia myrsinoides. A very closely related species is Olearia speciosa, a Grampian plant. These shrubs are all suited to ordinary garden soils.

Aster exul is found in the dry district country. It has large individual flowers, pure white, and carried in fine distinctive clusters. The Alpine Daisy, Celmisia longifolia, sometimes called Aster celmisia, found only in the mountain regions, is certainly a handsome plant. Its leaves, springing from the root crown, covered particularly on the backs with a mat of silvery and velvety hairs, form a crown from which rise the silvery stems, often a foot high, with large white terminal daisy flowers, many springing from one tuft or crown of foliage. The white flowers, which are frequently two inches across, are tipped with purple on the back of the ray florets. The Alpine regions are gay with masses of this flower in January.

The little Daisies are so plentiful everywhere and withal so modest, growing and trailing in low situations, shining among grass and herbage, of shades of heliotrope, gradually merging and fading to white; they are true Australian representatives of their Scotch relation of which Robert Burns wrote:

"Wee, modest, crimson-tippèd flower,
Thou'st met me in an evil hour;

H. P. Dickins, photo.]

Acacia pycnantha, Benth.

(Golden Wattle.)

J. A. Scars, photo.] Acacia longifolia, var. Sophorae.

For I maun crush amang the stoure
Thy slender stem;
To spare thee now is past my power,
Thou bonnie gem."

Our daisies are known to botanists as Brachycome; only one species has been brought into commerce as a garden flower, and that comes from Western Australia. It is catalogued in seedsmen's lists as the Swan River Daisy.

Several Victorian species of Brachycome would make dainty and useful garden plants. It would only be necessary to collect the seed from the old flower heads, and plant it, when it would germinate readily. Brachycome diversifolia, a fairly tall white-flowered species; Brachycome multifida, a low plant with heliotrope flowers, and Brachycome graminea, similarly coloured to the former species are common in all parts, and would grow in any garden and give satisfaction.

One uncommon plant of the daisy family grows in the Grampians and in the humid valleys of Gippsland. It is known as Humea elegans, and unless botanically examined it would never occur to anyone to class it in the daisy family. There are only three or four florets in each headlet and these are very small. The plant is usually called the tobacco plant, from the large pungently-scented leaves, which are similar to those of the tobacco. The plant is a biennial, that is, it has a life of only two years. Biennial plants generally take the first year or season to produce their growth, flowering in the second season, and then dying off after the seeding time. When

flowering, this Humea sends up a long stem, sometimes six feet in height from which hang in drooping hundreds, very small delicate flowers, sometimes silvery white, sometimes pink, and often a rich crimson. The weeping, plume-like character of the large head of small flowers is of a very decorative appearance. Unfortunately, to some people, this beautiful plant is of a very troublesome nature, possessing the power to cause painful irritation when coming in contact with any part of the skin. The effect is like that of a severe attack of eczema, the parts affected swelling and being painful for some days. Fortunately, the large majority of people are immune, and may handle the plant with impunity, and very few people are susceptible to its irritant action.

This species is a most decorative plant for garden culture. It is difficult to describe the loveliness of its dainty drooping plumes. Although favouring cool and sheltered positions in its native home, it grows well on banks, rockworks, and in garden beds, provided the soil is good and moist.

In Switzerland it is a popular pastime for flower lovers to obtain a flower of a beautiful plant which grows on the Alps, and which is known as the Eidelweiss. This is also collected for sale by the mountaineers. In the Victorian Alps there grows a very close relation of this plant which is often and correctly called Eidelweiss, being botanically known as Leontopodium Catipes. It forms close tufts of a silvery white growth from which the woolly tufted flower heads rise, sometimes six inches in height.

The flannel flower, Actinotus Helianthi, which is so popular in Sydney in springtime, and which is

F. L. Reeves, photo.]

Celmisia longifolia, Cass.
(Mountain Daisy.)

A. J. Relph, photo.]

Micromyrtus mierophylla, Benth.
(Baeckea plicata.)

A. J. Relph, photo.]

Actinotus Helianthi.
(Flannel Flower.)

often looked upon solely as a New South Wales species, has also been found in East Victoria, but it is not common there. It is a perennial plant, and very attractive with its petal-like bracts, which are similar in appearance to strips of soft white flannel. The general appearance of the flower would lead one to suppose that it should be placed in the daisy family. But the flower structure differs considerably from the daisies, and it is placed naturally in the Umbelliferae order. The whole plant is exceedingly attractive; the clean flannel-like appearance of the flower, which is not at all stiff, the firm stems which show off the flower so well, the white hairy or woolly vestiture of the stem and the foliage, all combine to form a most dainty and decorative plant.

CHAPTER VII.

The Myrtle Family.

THERE are no species of the true Myrtle growing naturally in Victoria, but there are many representatives of the family, some of which have become of world-wide importance. This is especially the case with the Eucalyptus genus, which is placed naturally in the Myrtle family, or as it is botanically known, Myrtaceae.

To the Myrtle family belong plants of all magnitudes, from small prostrate plants to large trees, which may be classed among the giants in the tree world. Plants belonging to this family may readily be recognised by the presence of semi-transparent dots in the foliage, which contain a fragrant and volatile oil, and by the usually numerous stamens. When the leaves of any members of the Myrtle family are crushed or bruised, they usually give out a fragrant odour, owing to the presence of the oil in the glands or dots. This odour must not be accepted as an infallible guide, for plants belonging to other divisions also emit a spicy odour, notably some of the mint bush plants which belong to the Labiateae, and also some of the Boronias which belong to the Rutaceae.

The fruit of the various myrtaceous plants is more usually in the form of hard nut-like seeds or seed-pods, such as occur in the tea trees, or in the gum

trees. Occasionally the seed is surrounded by a fleshy substance forming a berry; this form of fruit, however, only occurs in one Victorian species, Eugenia Smithii. To the Myrtle family belong all the so-called "tea" trees, bottle brushes, and gum trees. The most prominent and important genus of plants in this family is the Eucalyptus, which is of such consequence as to deserve a special chapter to itself.

Next in importance come the various shrubs and trees known as tea (or ti) trees. The leaves of these plants are not used for making tea, as one would suppose; the name has arisen as a result of the use of the leaves of one species, Leptospermum scoparium, to make a tea infusion, which was used during one of Captain Cook's expeditions as a remedy for scurvy. The modern spelling of this common name is ti-tree, a corruption from the original common name. There is no reason for the change, and the old spelling, if a common name be used, should be adhered to.

The tea-trees as here known are naturally separated into two genera, Leptospermum and Melaleuca, but the former is really the tea-tree section, the latter being more allied to the bottle-brushes or Callistemon. The Leptospermum family has open single flowers, generally white, but sometimes cream or pink. There are usually five petals, and these are fairly large. The commonest is Leptospermum laevigatum, which is our ordinary coastal tea-tree, and which abounds along the sand hills adjacent to the sea-shore; it also occurs inland. It is covered with masses of bloom in spring, and is a handsome shrub whether in nature

or cultivated. This species makes a most excellent hedge, being quick growing and easily kept in bounds by pruning and cutting.

The young plants may be lifted from their sandy home at the seacoast, or in the bush, and transplanted directly into any well worked garden soil. If sheltered with twigs until they are established, they quickly grow, and make themselves quite at home in their new habitat. They should be well trimmed, and kept within bounds, cutting them back after the flowers have dropped in spring. Although hardy, this species is very readily attacked by scale insects. When that occurs, a spraying with a contact insecticide, such as weak red-oil emulsion, is necessary.

The whole of the species of Leptospermums are worthy of cultivation; some have smooth and semi-woolly leaves, others have prickly foliage. All the species flower profusely and the bushes are very elegant at flowering time. Leptospermum scoparium is the low prickly shrub frequently met with in the bush; Leptospermum myrsinoides is another prickly form; the former is taller than the latter, and the latter is frequently found bearing pink flowers. A variety of the form has been found in New Zealand with bright scarlet flowers, and it is now being generally cultivated in gardens. One of our finest forms is a variety of Leptospermum lanigerum called grandiflorum. This variety grows in the Grampians, where it frequents the moist spots on the hills and mountains. It is not uncommon to find it with flowers three-quarters of an inch across.

Closely allied to Leptospermum is the genus Baeckea. The flowers are similar, but generally

A. J. Relph, photo.]

Callistemon pithyoides, Mig.
(Yellow Bottle-Brush.)

A. J. Relph, photo.]

Thryptomene Mitchelliana, F.vM.

very much smaller; the growth of the plants of this genus is much lighter and finer than that of Leptospermum. Baeckea linifolia is well known as a dainty little heath-like shrub with small white flowers. Baeckea plicata, which has been under cultivation for many years, is more correctly named Micromyrtus microphylla. Another name given by the late Baron von Mueller was Thryptomene ciliata. It is a low-growing, diffuse shrub, with pinkish flowers changing to red with age. It is found in the Mallee and in the Grampians; in the latter locality it grows in immense clumps of dozens of bushes.

This is one of those low shrubs that should be in every garden where such dainty plants as Heath and Daphne are grown. It never grows large, but it makes up for that defect, if defect it be, by a wonderful profusion of bloom, lasting for a very long time on the plant.

The Grampian shrub, Thryptomene Mitchelliana, is without doubt, one of the most handsome and decorative of our native plants. Its erect habit of growth, its distinctive foliage, its wonderful masses of pink and white starry flowers, and its long period of flowering all combine to make a most desirable shrub for the garden. It grows readily from seed, especially if the seed be collected from a garden plant, and if it be fresh. Too much emphasis cannot be placed upon the beauty and elegance of this shrub; and although it has been placed in plant nurseries lists for some years, it is not nearly so frequent in gardens as it should be. It possesses to a marked degree, those characteristics so noticeable in the Aus-

tralian flora, abundance of flowers, and an extended flowering period.

The Melaleucas are not correctly tea-trees, but somehow the name has become attached to this genus as well. The leaves are small, the habit of the shrubs generally erect, and the flowers are like small bottle-brushes. The colour of the flowers extends from pink and purplish to yellow and white. While the flowers of many species are of decorative value, particularly those bearing pink and purplish flowers, the local forms of Melaleuca are not so decorative for garden work as are those of some of the other States. Melaleuca hypericifolia carries the largest flowers and is of a red colour, while Melaleuca gibbosa and Melaleuca decussata, with purplish flowers, are always very decorative. Another plant, Kunzea parvifolia, having pink flowers, is very similar in appearance to the Melaleucas, and is worthy of a place in our gardens.

The genus of plants known as bottle-brushes is botanically known as Callistemon. These are elegant, hardy, and uncommon-looking shrubs, especially at flowering-time. The young leaves are bright in colour and make the plants very decorative in the spring. Their flowers are usually in various shades of red, two species being yellowish. Callistemon brachyandrus bears an elegant flower with clusters of scarlet stamens and yellow anthers; Callistemon coccineus and Callistemon lanceolatus have flowers in shades of crimson and are very large; Callistemon linearis has a rose-coloured brush with yellow stamens. These shrubs all retain their seed-

A. J. Relph, photo.] **Kunzea parvifolia, Schauer.**
(Small-leaved Kunzea.)

A. J. Relph, photo.]

Lhotzkya genetylloides, F.vM.

vessels for many years, the seeds having the power of delaying germination. When the vessels are removed from the plant and dried, the seeds drop out. They are then easily grown. A pure white form of Callistemon lanceolatus has been seen in Gippsland, but it is very rare.

The genus Callistemon is hardly a class of plants to be grown in small gardens, owing to their straggling habit of growth: but among shrubberies and in large plots, they are very worthy of a place.

Several other plants in the Myrtle family must be mentioned before we pass on to the Eucalypts. Two closely-related plants, and these only occurring in the Grampians, are Calycothrix Sullivani and Lhotzkya genetylloides. It seems almost a pity that such a lovely plant as the latter has so harsh-sounding a name. It has a beautifully dainty habit, light and loose, and the starry pinkish flowers are set off by the background of dark green foliage. The former plant grows more robustly and is far more generous in its flower supply. It is not uncommon to find shrubs of this plant eight or ten feet high simply a fluffy mass of starry pinkish and white flowers. When the plants are young it is somewhat difficult to distinguish between the two; but it may be noted that while Calycothrix bears its flowers in dense racemes, Lhotzkya carries only a few in each headlet.

The last three plants of this section that will be mentioned are all natives in Victoria only to East Gippsland; from thence they extend into New South Wales and Queensland.

Eugenia Smithii is the only representative of its genus in Victoria and is usually known by its native

name of Lilly-Pilly. Naturally it is a fine, tall, spreading tree, with glossy foliage. The flowers are insignificant. But, in early spring, the berries make up for the poor flowers, for the trees are then laden with heavy clusters of purplish or white succulent berries, nearly on one inch in diameter. The "Lilly-Pilly" is a common tree along the Snowy River and other rivers of East Gippsland and in the adjacent jungles, and its beauty adds largely to the landscape. In gardens it is suitable for specimen trees or for hedges. It prefers good soil, and does not seem to be averse to manure conditions; at the same time it is hardy enough for any soil. It makes better growth if well pruned and trimmed, especially when used as a hedge or a shelter, and the glossiness of the young growth is very effective. Unfortunately, under cultivation it is very subject to attacks of the black flat scale, Aspidiotus Rossi, but the pruning and also spraying will eradicate that trouble. The fruit is edible, being somewhat acid in taste.

Tristania laurina, the "Kanuka," is a compact growing shrub with glossy foliage and clusters of small yellow flowers. The timber of this small tree is dark red and very hard.

The last of the Myrtle family to be mentioned has often been called a Eucalypt that has no Eucalypt. To all ordinary observers, Angophora intermedia is just an ordinary gum tree. The tree, bark, foliage and flowers are all typical of the Eucalypts, but the seed-pods are more angular than those of the gum tree. The main distinction, however, is that Angophora has no cap to cover the flower bud, as is found

in the Eucalypts, and it is this cap or cover—sometimes there are two—which distinguishes the Eucalypts from all other genera. The Angophora —there are several other species in the other States— are generally more shapely and elegant than the Eucalypts, and they are desirable trees to grow, especially on lawns or in specimen groups.

CHAPTER VIII.

The Myrtle Family: The Eucalypts.

THE Eucalypts, or as they are commonly called, Gum trees, are the most common and the most widely distributed of all our native trees. They were called gum trees many years ago, on account of their secreting a resinous gum, which frequently exudes from the tree. They are purely Australian trees, as, with the exception of a few species which are found in some of the islands to the north-west of Australia, the whole of the Eucalyptus genus is found naturally only in Australia.

The name Eucalyptus was suitably chosen, meaning well or completely covered, as the covering which drops off the flower bud when the flower is opening is the symbol of this genus. We are most familiar with this covering or cap in the blue gum tree, Eucalyptus globulus. The blue gum is a most beautiful tree, with large distinctive flowers, and with a bluey-white, waxy covering on the young leaves. It is not a tree to be generally cultivated in gardens, as it does not live long under cultivated conditions. It naturally grows in cool and wooded valleys, hence shelter is its main requirement. Still, for its beautiful foliage, even as a young shrub, and short-lived as it thus may be, it forms a beautiful sight in any garden. This species has been planted in various towns as a street-avenue tree, but for this purpose it can never

Grevillea alpina
Pomaderris lanigera
Verier
F. Dickins
1914

be claimed that successful results are obtained. Indeed, it has invariably been an utter failure when planted as a street tree. It is one of the gums, too, that resents pruning, or cutting back.

In the Northern Hemisphere, this species is grown as a greenhouse plant. In fact, the Eucalypts generally, and also the Acacias, are largely in use in England and elsewhere as conservatory pot plants, although in the warmer parts of France and Italy they thrive remarkably well as garden or park trees. In some parts of America the gums, notably the blue gums, and some of the other hardwoods are also being extensively grown; and some pessimists have declared that before long we shall be sending to America for our own timbers. Certainly there is great need for re-forestation, as it is being found more and more each year that our timbers, particularly our Eucalyptus timbers, are becoming scarcer, and more costly to obtain.

A far better species for street planting would be the mahogany gum of East Gippsland, Eucalyptus botryoides. This is a beautiful species, hardy, ornamental in outline, with fine distinctive and striking foliage. In Victoria it is only native to the eastern section, but on account of its hardiness and attractive appearance, it has been planted in almost every division of the State, and it is thriving equally well in the north as in south. Its habit is naturally shapely and decorative, and this, combined with the glossy character of the large leaves, makes it a desirable tree either as a specimen tree or as a shelter group. Like all Eucalypts, this species is amenable to fair treat-

ment and to good soil. Two seedlings of this variety were planted at Heidelberg, one in poor and dry soil and the other in rich soil, well-watered. At the end of the four years, the former was a poor specimen about six feet high, while the latter was a beautifully-formed tree, fully twenty feet high. This is a useful species too, for its timber is one of the hardest and most durable, and very much resembles that of the red gum, Eucalyptus rostrata.

The red gum is only suitable for growing in park lands and other large areas; and there it succeeds best in the moister parts. Except under forest conditions, it is neither straight nor tall; but it assumes an irregular spreading habit, and thus it is one of our truly picturesque gum trees. With strong, variously coloured trunk, with sprawling, spreading and scattered limbs, the weaker ones being somewhat drooping and pendant, this Eucalypt, when mature, is one of the typical old gums that are a feature of our Australian landscapes.

Another very ornamental tree is the honey-eucalypt, Eucalyptus melliodora, which is commonly knows as "Yellow-box." This species is not so regular in growth as some other eucalypts; yet its open, spreading, and often bent and drooping limbs, its blotched and many-coloured bark, particularly in the spring-time, all combine to form a very pleasing picture, particularly when the tree is growing in open or park lands. Like a large number of Eucalypts, this species generally takes two years to bring its flowers to maturity, hence it can be relied upon to produce a good crop of blossoms only once in two years. But

when the flowers do come, the tree is simply a mass of creamy bloom, fragrant and beautiful. At this time the trees are the happy hunting ground of myriads of bees, and other nectar-loving insects, which come for the large quantities of nectar which is given out by the blossoms. This tree is one of the best friends of the bee-keepers, on account of the abundance and quality of its honey-nectar. It is a moderately quick growing tree, and suitable for groups in parks and paddocks.

A tree that should be more grown than it is at present is Eucalyptus polyanthema, frequently known as the red-box tree. Its habit is bushy and compact and it flowers profusely, but its outstanding feature is the glaucous-blue or greyish colour of the leaves, which are not long and pointed like those of most Eucalypts, but broadly oval or rounded in shape. It would thus form a prominent feature in the foreground, when the trees in the background were of a dark green colour.

A very popular and well-known gum tree, and one which is really beautiful, is the sugar gum, Eucalyptus corynocalyx. Baron von Mueller originally named this tree Eucalyptus cladocalyx, the specific name meaning a flattened calyx; but afterwards, for reasons so far unexplained, he afterwards renamed it Eucalyptus corynocalyx, the specific name meaning a club-shaped calyx.

Even in 1866, when Bentham published the third volume of his *Flora Australiensis,* he described this species as a "tall elegant shrub." It is a hardy, quick growing and conspicuous tree; its foliage is

large and glossy; it produces dense panicles of prominent flowers; and it grows with a fine round bole and an upright stem. Whether grown as an individual tree, as a background belt, or as a hedge, it is always noticeable and pleasant. Of all Eucalypts, this species responds most readily to pruning and trimming. It may be cut back and shaped, when it will respond with a vigorous and plentiful growth, breaking away low down, sometimes to the base of the trunk. In one of our inland towns some very fine avenues of sugar gum were growing in the streets. These had to be considerably reduced, owing to the introduction of electric-lighting wires. In every instance, dozens of trees were cut off direct into the main trunk, about ten feet from the ground; all the limbs were lopped off, and nothing but the trunk was left. The trees all shortly after broke away into a strong and bushy growth from very many dormant buds, forming a dense and compact top. Subsequently, a fine head was formed on each tree and very few trees died as a result of this severe treatment. Experienced tree-pruners would never have dared to treat the trees so drastically, but the result attained is a response and a reward to the unconscious following out of the old proverb: "Fools rush in, where angels fear to tread." Not that all experienced tree-pruners are angels, by any means.

In one of our mountainous districts, a row of this species was once grown as a hedge, the young plants being planted about eighteen inches apart. The hedge was trimmed as any ordinary hedge would be, and formed quite a good compact growth, not unlike

F. R. Beuhne, photo.]

Eucalyptus melliodora, Cunn.

(Yellow Box Tree.)

A. J. Relph, photo.]

Eucalyptus corynocalyx, F.vM.

(Sugar Gum.)

H. P. Dickins, photo.]

Eucalyptus globulus, Labill.

(Blue Gum.)

a privet hedge. This is one of the few Eucalypts that usually produces an annual crop of blossom. It may miss an odd season, but even that is not frequent. For that reason, and also on account of its remarkably quick growth, it should certainly be largely planted where bees are kept. For, in addition to its other qualities, it flowers very profusely, and the honey is reported to be of good quality.

Eucalyptus maculata, the spotted gum, is a stately, handsome tree, with smooth whitish bark, from which the older bark falls off in patches, giving the trunk a spotted appearance. The tree is naturally well-shaped and grows very tall. In his *Forest Flora of New South Wales,* Mr. J. F. Maiden, Government Botanist of that State, records a specimen to be three hundred feet in height. There is a very fine specimen of this tree growing in the Melbourne Government House Domain; and another beautiful one is growing near the main entrance to the Geelong Botanic Gardens.

The lemon-scented gum is considered to be merely a variety of this species, being named Eucalyptus maculata, var. citriodora. It differs only in the subtle fragrance of the oil in the leaves, which is lemon-scented, and in the whiter and clearer appearance of its bark, the older bark dropping off more readily and leaving none of the spotted appearance. This, too, is a handsome tree, and the light trunk and limbs are set off to great advantage when planted in front of some darker foliaged and dense growing trees. This variety is not a native of Victoria.

The common names of the Eucalyptus family are very much confused; there are quite a number of

red-gums, two or three blue-gums, several peppermints and stringybarks, mountain-ash, and ironbarks, while the terms, box and hickory, are applied to trees of other genera besides Eucalyptus. This is in a way unfortunate, especially where timbers are ordered commercially on the authority of their common names, for it frequently happens that, when two timbers own the same common name in different localities, one is much inferior to the other. Thus an inferior blue-gum might be supplied where the superior blue-gum is wished for.

There is a certain classification for common names, which is more or less elastic and sometimes overlapping. The term gum-tree originally referred to any eucalypt, but it seems now to refer to those which have a more or less smooth and shining bark, which flakes or peels off in large sections. The timber is generally less close-grained in the texture than the box eucalypts. Typical examples of this section are the red-gum of the river flats, Eucalyptus rostrata, and the blue-gum of the mountain valleys, Eucalyptus globulus. The box-trees have a closer and cross-grained timber, and the bark is rough, hard, and scaly, and finely fibrous. The honey-eucalypt, or yellow-box, Eucalyptus melliodora, is an example of this class. Then, sometimes trees possess united "gum" and "box" characteristics, and thus one of our grey-box trees, Eucalyptus hemiphloia, is called in some districts the gum-topped box, and Eucalyptus odorata is sometimes known as the gum-box.

The peppermints have closely fibrous bark, usually grey in colour, with durable timber, and with leaves strongly odorous with peppermint scent. Eucalyptus piperita and Eucalyptus odorata are peppermints.

The stringy-barks have a bark which is very fibrous and stringy, easily torn from the trunk, and with hard firm wood. The common stringy-bark is Eucalyptus macrorrhyncha, while the "messmate," so called from its similarity to this one, is Eucalyptus obliqua. The "apple box," Eucalyptus Stuartiana, has bark of the " stringy bark " type, although it is not so pronounced as in the others mentioned, being more flaky.

The iron-barks have hard, strong, and deeply-rugged barks; at the same time some iron-barks have a perfectly smooth bark.

Eucalyptus leucoxylon is commonly known as the ironbark; it is a fine tree with fairly large flowers, while the variety, rosea, is really handsome, with its rose-coloured flowers. West Australia can boast the possession of some fine ornamental eucalypts, quite a number having red coloured flowers. In Victoria there exists only one reddish coloured form, and that is this variety rosea. It is a shapely and fairly tall tree, quick growing, and well suited for a specimen tree, for street trees, or for a decorative tree in shrubberies. There are various shades of colour of the flowers. The most common one has flowers of a glowing rose pink; others are paler, while some—and they are more uncommon—are of a rich, deep, cerise colour. The tree commences to flower about its third year, and the flowering period is of extended

duration. Some specimens growing in cultivation have had a bloom period for over four months of the year.

To one Victorian tree, Eucalyptus paniculata, Baron von Mueller gave the name of box-ironbark. The red ironbark is Eucalyptus sideroxylon, and in this case the wood being so hard, it may be called ironwood (for that is the meaning of its name) as well as ironbark.

Other common names, mountain-ash, woollybutt, bloodwood, blackbutt, mahogany, blackwood, and others, are generally applied to definite trees, although these, too, sometimes apply to two or three species.

A. J. Relph, photo.]

Brachyloma daphnoides, Benth.

A. J. Relph, photo.]

Boronia pinnata, Smith.

(Pinnate Boronia.)

A. J. Relph, photo.]

Leptospermum myrsinoides, Selech.

CHAPTER IX.

The Protea Family and its Allies.

PROTEUS was one of the ancient Greek Gods, a son of Neptune, the old sea god, who had the power of changing his shape at will; and in suggestion of the great diversity of its species, the genus Protea and the order Proteaceae were named after him.

The family of Proteaceae contains many plants so apparently different, that it is hard for the novice to believe that such plants, presenting so many apparently differing forms, should belong to the same family. Although the flowers of the different genera are very different in appearance, one outstanding feature is prominent, and that is the hard leathery texture of the mature foliage of almost every species. It would seem as if Nature had so allowed these plants to gradually acquire the hardened foliage that they might adapt themselves to hard, hot and dry climatic and soil conditions, and so to sustain life under the most trying circumstances.

Observers are familiar with either the native Honeysuckle, the Grevilleas, or the Waratah. These are all members of the Protea order. The peculiar form of the individual flowers, which are generally crowded together in heads of from a few to dozens of flowers, is always noticeable, and the very long pistil and stigma are characteristic of the family. Most members of the Protea family, too, are rich in

nectar or flower honey, and so these flowers are valuable for bees.

The flowers of Proteaceae always have four petals, usually of unequal length, and in such genera as Banksia, Grevillea, Hakea, and Telopea, the style is generally elongated and thickened at the end—where it is curved—somewhat like a club, the club-like formation being the stigma.

The honeysuckles are botanically known as Banksia, being named after one of the world-famous botanists, Sir Joseph Banks. There are nearly fifty honeysuckles native to Australia, most of which occur only in West Australia; in Victoria we have half a dozen, the most ornamental being Banksia collina. This is found along the costal and Gippsland districts from Mornington to Cape Howe. From the appearance of the shining black styles, which are curved inwards before the individual flowers fully develop, it is often called the hairpin honeysuckle. It is a decorative low bush, and very hardy.

Banksia marginata is the yellow flowered shrub so common throughout the State, while Banksia integrifolia, which usually has the margin of its leaves quite even and level, is the ordinary coastal honeysuckle. More handsome than either is Banksia serrata, the saw-leaved honeysuckle, which is fairly common in East Gippsland. It is an irregular growing tree, with leaves having saw-like edges, the teeth being very large. Banksias may be grown generally in garden soils, but manure should be withheld from them.

The more ornamental of Proteaceous plants are the Grevilleas. None of our Victorian species assume the

size of tall trees; they are all low bushes or shrubs; it is in the warmer States that the tree Grevilleas are found. Frequently these plants are called "comb" or "tooth-brush" flowers, owing to their peculiar similarity to those articles.

One of our finest is Grevillea Victoriæ, named after Queen Victoria by the late Baron von Mueller. This plant grows in the alpine districts, and bears very large red flowers. Grevillea oleoides, the olive-leaved Grevillea, is another bright red species, and worthy of our attention. Grevillea alpina is the red and yellow form which is fairly common, and sometimes plants are found with yellow and with orange flowers.

Grevillea rosmarinifolia, the rosemary-leaved Grevillea, is one that is largely in cultivation, and one that succeeds well. Its dark green foliage sets off the bright pink flowers, and is always to be admired.

Two shrubs must not be omitted, Grevillea aquifolium and Grevillea ilicifolia. These are Mallee and Grampian plants and are very similar in appearance. They have red flowers, and foliage similar to the Ilex or holly, hence the name of the latter species.

The Grevilleas should be more largely grown in gardens than they are at present. They are all showy, decorative shrubs, with a good display of flowers, and perfectly hardy. They mostly flower for a long period, and are not at all particular as regards soil qualities.

There is another genus of plants which possess leaves very similar to the leaves of the holly. These are called Lomatia. There are three species which

are common throughout the southern and eastern portions of Victoria, but the flowers are not of exceptional merit.

The New South Wales Waratah is well known, but the Victorian species is not so familiar. This is known as Telopea oreades and occurs in East Gippsland only. There it grows to the height of twenty feet or more, forming a fine spreading tree. In the springtime the trees are covered with masses of bright red flowers, and it is a fine sight to look down from the hillsides upon a group of Waratah trees in full bloom growing along the creek banks. The flower, although conspicuous, is much smaller than that of New South Wales species, which grows on a low, shrubby bush.

The genus Persoonia possesses some very decorative shrubs, all with yellow flowers, the majority occurring in the East and North-east. The fruits are usually carried in clusters, green in colour, and fairly succulent and sweet. There are about a dozen species native to Victoria, all reproducing readily from seed. The Persoonias are all attractive plants, with good dark green foliage, some being slightly spinescent, especially Persoonia juniperina. The two species arborea and linearis, are perhaps the most attractive of all; the former with fine large foliage and flowers, and the latter with narrow leaves.

The Hakeas also belong to this family. There are about one hundred species altogether, the majority of which, like the Banksias, are to be found in West Australia. The Western species, too, are the more decorative. Hakea saligna and Hakea eriantha are

F. L. Reeves, photo.]

Angophora intermedia, D.C.

A. J. Relph, photo.]

Epacris impressa, Labill.

(Heath.)

good forms for garden work; while any of the prickly species, such as Hakea ulicina, Hakea pungioniformis and Hakea rostrata all make good hedge plants. The Victorian species have white or cream coloured flowers.

To anyone familiar with Hakea or Grevillea as a type of the Proteaceae, it would be a surprise to find that one of the restricted Grampian plants, Conospermum Mitchelli, also belongs to that order. With its flat-shaped head of woolly white flowers, tinged with grey, it is more like one of the Cassinias or dogwood bushes, of the composite order, than anything else. This plant makes certain parts of the Grampians very gay in early summer, flowering well and profusely.

The native " cherry " is one of those plants which has given our Australian flora such an unusual reputation. It is the tree that is credited with bearing cherry-like fruit, having the stone on the outside instead of inside. This, of course, is an error, as what appears to be the fruit—and it is usually very small,—is a well-coloured and succulent fruit stalk, the seed being attached at the end. The best known species is Exocarpos cupressiformis, the generic name meaning fruit on the outside, and the specific name referring to the similarity of the tree and foliage, to the Cypress or Cupressus. There are four other species, not so common as the " Cherry." Among bushmen, it is usually considered that the land on which the Exocarpos grows, is eminently suited for apple culture.

The Quandongs of the Mallee, of the genus Santalum, the Native Cherries, and the wild gooseberries, Leptomeria, are closely allied to the Protea family, as are the various Mistletoe plants or Loranthus. These plants all bear edible fruits, and in the days when the Mallee was first settled, and cultivated fruits were scarce, Quandong jam was quite a common household preserve. The mistletoes are responsible for the death of very many trees, being parasitic plants; and, in addition to attacking native trees, the birds which eat the fruits, drop the seeds promiscuously, and the plants will become troublesome to cultivated trees as well. The mistletoes are plants which should not be encouraged in gardens.

The genus Isopogon, which belong to the Proteaceae order, with its two species ceratophyllum and anemonifolium, is an uncommon type. The plants assume a tufted or cushion-like form, spreading in low growths over the ground. The small round, yellow flowers are low set in the foliage which is very stiff and prickly. It is of unusual form, being small, hard and very much lobed, branching, or dissected. The plants are often called "blackfellow's combs," in allusion to the shape and texture of the leaves.

CHAPTER X.

The Heaths and Bluebells.

HEATH and bell-flowers, or bluebells, are very close relations. They are two flowers that everybody is familiar with. In winter time many parts of the Australian bush are brilliant with acres of the native heath. Of all colours, from white and pink, to the deepest shades of reds, crimsons, lakes, scarlets, almost to deep purple in some localities—the heath is the one winter flower that is much sought after. From low, straggling plants in the dry heath country, plants are not much over a foot in height, it grows to an irregular bush, very much higher in the mountain regions.

It is probably in the Grampians that our native heath attains its finest beauty. There the greatest range of colours is found; there the " bells " are extremely large; and there the bushes are very tall. One bush in that portion of Wonderland called " The Silent Street," I measured to be over eight feet in height. It is often noticeable that the colour of heath is limited to districts. That is, in one locality the whole of the heath plants will bear white flowers, in another, pink, and in another, red. There appears to be no reason for this, for it will be again found that all colours are growing intermingled in the same area. Very rarely " double " forms of this plant are found, that is, plants in which the corolla, or flower petals, are more numerous than usual. In one instance, I

have opened flowers of the double form and have found ten separate cups or bells, all inside of each other. Although rare, the double form is not nearly so dainty as the ordinary form. This heath is called Epacris impressa, and the genus is almost purely Australian. This heath grows quite readily and freely under cultivation, if accorded the same treatment which is given to the ordinary garden heaths. The soil must be well drained and light—sandy for preference. The most suitable soil is a sandy peat, with no clay. They require no manure whatever; but an occasional top dressing of fresh peaty soil is helpful to them. They need to be kept fairly dry in winter, and given a good supply of moisture in summer. This Epacris will readily transplant, if young plants are selected, and if the roots be undisturbed, and it grows readily from seed. Another species, Epacris longiflora, is recorded only from East Gippsland, but it is frequent in New South Wales. The flowers are larger than the common heath, and are not so variable in colour, which is of a crimson red, and white at the tips.

All of the other Victorian species—there are nearly a dozen of them—have white or very pale pink flowers.

A nearly related plant is Brachyloma daphnoides, bearing large numbers of small white and sweetly scented bells. This grows in the form of a low bush, and on account of the quantity of nectar which is secrets, it is much visited by bees.

Sprengelia incarnata is one of the heaths which grow only on swampy ground or on stream margins.

It is bright pink in colour, and carries its flower heads on long stems.

A delicately beautiful heath plant, Richea Gunni, grows in tufty masses on the top of the Buffalo and Baw Baw mountains. From a low tuft of harsh rough foliage, springs a flower crown, four or five inches in height, of most delicate waxy white bells. It is one of the most dainty and uncommon of all our heaths.

The hardier heaths belong to the genus Styphelia, and these give flowers of all colours. Styphelia Sonderi is a brilliantly scarlet species with large flowers, which is found in the Grampians, the Mallee, and Stawell districts. Its seeds are produced in the form of succulent red berries, which are sweet and well flavoured; they are much relished by emus, and on that account the plant is often called the emu-berry bush. The native cranberry, Styphelia humifusa, belongs to this genus, and its sweet, succulent, glutinous berries are often eaten by children.

Another species, Styphelia Richea, or Leucopogon Richea, is found in the form of a bush, or low tree, growing on the sand-hills along the sea coast. This bears edible white berries, which are not so well flavoured as those of the preceding species.

Styphelia adscendens, with its peculiarly twisted greenish corolla, and Styphelia pinifolia, with yellow flowers, which looks like a minature pine tree, are two uncommon species worthy of notice. The heaths which are usually cultivated in gardens do not belong to the same order of plants as those mentioned. That order is Epacrideae, and the order to which the Ericas or true heaths belong is Ericaceae. There are

only two Victorian representatives of the latter order, and they are both alpine plants, growing upon the top of the mountains in the eastern districts.

The common bluebell, Wahlenbergia gracilis, is a cousin of the heaths. It is a very variable plant, having small flowers in some cases, and very large flowers in others, sometimes reaching to a diameter of one and a half inches. The plant too is variable; sometimes it dies annually, reproducing itself again from seed, and at other times it forms a perennial root crown, lasting for some years. It is usually on granitic and volcanic soils that the flowers assume the purest of blue colours, and produce the greatest profusion of blossoms. There is no reason why this flower should not become as popular as any of our dwarf blue garden flowers.

The well known Lobelia belongs to the bell-flower or Campanula order, and its glorious blue colour makes it a general favourite through three seasons of the year. It is an annual plant; that is, in one year it grows from seed, produces its crop of flowers, ripens its seed and then dies. We have in East Gippsland another form, Lobelia gibbosa, which is as equally beautiful as our garden one. It is a fine blue, and the flowers themselves are much larger. The habit of the plant is an erect one, the stems averaging from nine inches to a foot in height. A clump or border of this plant would make an ornament in any garden.

The trigger plant, Stylidium graminifolium, is a near relation of the bell-flowers. This plant has received its name from the trigger-like form of the

A. J. Relph, photo.]

Wahlenbergia gracilis, Cand.
(Bluebells.)

A. J. Relph, photo.]

Styphelia collina, Labill.
Leucopogon collinus, R.Brn.

F. L. Reeves, photo.]

Richea Gunnii, J. Hooker.
(Mountain Heath.)

stigma, which, when touched either intentionally or by an insect, springs into the flower by a quick trigger–like action. By means of this sensitive action, the stigma is forced among the anthers, brushing the pollen from them on to its own surface. This then allows for fertilisation of the seed. The trigger plant is usually of a heliotrope colour, occurring in a white form rarely and only in mountain districts. In these localities, too, the flowers are very large.

Another plant, and still belonging to another genus, is Brunonia Australis. This is the beautiful bright blue " pincushion " so common everywhere in Australia in late spring or early summer. This flower is often taken as belonging to the composite order, whereas it is somewhat removed from that order, belonging to the Goodeniaceae family. This plant might readily be used as a border or edging plant; its bright blue flowers would be a novelty, and it would have far more colour and character than many border plants. It, except for its true blue colour, is not unlike the old Thrift edging that was so common a few years ago.

CHAPTER XI.

Orchids.

ORCHIDS are the aristocrats in the plant world. They are more valued than any other plants, and command the highest prices possible. Even in the days when the flower world went almost mad over tulips, and hundreds of pounds were paid for a bulb, and when on one occasion one bulb was sold for four thousand six hundred florins, a new carriage, two grey horses and harness complete, it is doubtful whether tulips ever reached the monetary value that orchids have reached in the present day. Orchids have been bought for many hundreds of pounds. A good collection of orchids is worth tens of thousands of pounds, and the discovery of a new orchid creates world-wide interest.

But we have none of these orchids in Victoria. These orchids grow in tropical climates, and are found growing upon trees. For that reason they are called epiphytal or epiphytes. There is one epiphytal orchid in Victoria, Sarcochilus parviflorus, and that is found growing on the trunks and limbs of the trees in the shady nooks and jungles of Gippsland, from Dandenong through to Orbost and New South Wales, and also in the Cape Otway Ranges of Victoria. It is a delicately-tinted small white flower, with pink and yellow spots and markings. The whole plant may be held in one's hand, a plant of a dozen leaves and flowers, but its daintiness is undisputed.

F. L. Reeves, photo.]

Stylidium graminifolium, Swartz.
(Trigger Plant.)

A. J. Relph, photo.]

Brunonia australis, Smith.
(Blue Pincushions.)

Two other species are recorded from far away in East Gippsland, and although they belong to a genus which is usually epiphytal, yet these two species grow among the hills and the rocks. These are Dendrobium speciosum, and Dendrobium striolatum. They are often called rock-lilies, especially by visitors to the Blue Mountains in New South Wales. The former species is frequently grown in conservatories. It is hardy, it does not require much water in summer, but it must be protected from frosts. It bears long racemes of white flowers; one spike of sixty-three flowers has been recorded.

The whole of the other species—there are nearly eighty of them—grow in the ground, and are therefore called terrestrial orchids. These are well known, as it is hard to mistake an orchid for any other plant. The unusual shape and form, the peculiar structure in the centre of the flower called the column; the hood, the lip, the tongue, all combine to form a flower which can only be classed as an orchid. The terrestrial species are usually common, and they do not belong to the section which is so costly to purchase. The orchid flowers are usually much sought after by collectors and by children; by the latter they are often called such names as "cows," "goats," "hands," "parson-in-the-pulpit," "spiders," "greenhoods," and so on.

Generally the "spiders" are the most popular. Their name is Caladenia, which was given to them in reference to the beautiful markings on that portion of the flower called the lip. Caladenia Patersoni is the name of the long-petalled spider orchid, the long

spidery petals often being over three inches in length. The most common "spider" orchid is Caladenia dilatata. This is the one with the broad lip (labellum), some of the petals being coloured and brightly marked with green.

The "greenhoods" belong to the genus Pterostylis; they are usually greenish in colour, and the upper portion of the flower is shaped like a hood, covering the rest of the flower. In many cases the labellum or lip is sensitive; if it is touched, or if an insect alights upon it, it springs up, and forcing the insect into the flower, retains it there for a short time, until the lip drops again. Many orchids possess this property, and it has been so given to them by nature, in order that they may be able to produce their seeds, so that the seeds may be fertile—that is, that they may grow. It is necessary that the pollen must be placed on the stigma. The pollen, by means of a growing tube, sends a drop of fertilizing fluid down to the young seeds, which gives them the power of vitality or life. In orchids, the pollen is not in the form of yellow dust, as it is in sunflowers, lilies and many other flowers, but it is found in sticky, almost solid masses. The insect being forced into the flower, almost always receives some of the sticky pollen masses on its body, and when it flies to another orchid, carrying the pollen with it, the stigma of the flower coming into contact with the pollen on the insect becomes smeared with it and thus fertilization takes place.

One orchid has a very much enlarged lip, which is also sensitive. This is a pretty purplish-brown orchid,

A. J. Relph, photo.]

Caladenia dilatata, R.Brn.
(Spider Orchid.)

A. J. Relph, photo.]

Calochilus Robertsoni, Benth.
(Brown Beards.)

and is known as the "Cockatoo" or "flying duck," owing to its remarkable similarity to a wild duck in flight. The orchid is not common, and is only found in the cooler and also in the mountainous portions of the State. It is Caleana major.

Another queer orchid is Calochilus Robertsoni. This is called the "old man," from the fact that the labellum, which is prune-coloured, is long and very hairy, protruding from the flower like a beard.

The "undertaker," or "flower of sadness," which grows in the sandy soil, and which is always more prevalent after a fire has passed through the scrub, is a peculiarly-formed plant, about 6 or 7 inches high, with a stem carrying three or four purple hooded flowers, and having one thick fleshy leaf. This is called Lyperanthus nigricans, and it receives its common name from the fact that, when dried or pressed it turns completely black.

The blue orchids, usually called "wild hyacinths," some of which are handsome, and often two feet in height, belong to the genus Thelymitra. There are nearly a dozen here, mostly blue-coloured, some also being pink or yellow. Thelymitra antennifera, a yellow-coloured one, is very sweetly scented. In this genus, the labellum formation is not so marked, the lip almost forming an even petal in the lower portion of the flower.

The orchids commonly called "cows" belong to the genus Diuris, which means two tails. This is in reference to the lower sepals being long and narrow, and somewhat tail-shaped. This genus is limited to Australia, the most beautiful of all being Diuris

punctata. This flower has the two tails very long, and is of a most beautiful heliotrope shade of colour. It is not very common, and its near relation Diuris alba, which is equally beautiful, is rare. This has the long double tails, but is white and sometimes shaded with very pale heliotrope, and with a few dark spots inside the flower.

The large blue orchid which is found over the whole of the State in springtime, is Glossodia major. This flower is often found in a white form in the mountain districts.

Two other species, much less common and worthy of notice, are Dipodium punctatum and Gastrodia sesamodes. The former is a leafless plant, with a stem often eighteen inches high, with many red, white or pink flowers, spotted inside with brownish purple. The latter is also a leafless species, with brown stems fairly tall, and with peculiar urn-shaped flowers, small, and white or brownish white in colour. Many of our orchids are figured and described in Dr. Rogers' charming little book on the orchids of South Australia.

Only a real orchid enthusiast should attempt to cultivate these orchids, as, except to an experienced hand, they are difficult to keep alive for any time. The chief essentials, however, are to grow them in their particular natural soil, to grow them in shade or sunshine, according as they grow naturally, and to withhold water when the tubers or bulbs are resting from growth.

CHAPTER XII.

Iris and Lily.

WHEN we think of all the wonderful and beautiful forms of these two classes of plants, those admirable plants that adorn our gardens—the Japanese and German Iris, the Christmas and Tiger Lilies—we are somewhat surprised that, in the flora of Australia, there are no species in these genera so large and so striking as those with which we are familiar. And this is all the more unusual, seeing that these plants grow in a wide climatic range, including both tropical and temperate, and in Australia we have these climates extensively.

In Victoria, most of the plants of these families are small and diffuse, only a few growing to any size. Our largest and most striking liliaceous plant is the grass-tree or Xanthorrhoea. In the younger stages the foliage extends directly from the soil, like a long vigorous tuft of harsh grass, assuming a butt or stem with age. Sometimes the stem branches into two or more growths. The small white flowers are produced along a very tall spike, sometimes six or more feet in height, and the bushes, or "trees," always flower vigorously after a bush-fire. An interesting occurrence may be noticed in connection with the flowering of the grass-tree spike. It is almost invariable that the flowers on the north side of the spike are the first to open. Thus it is possible, from observing the flowering spikes, to determine the points of the

compass. The plant is pervaded with a very strong resin, and in bee country this is very objectionable, for the flowers have a strong sweet fragrance which, of course, attracts the bees. From the plants they gather the resin in large quantities, and plaster it over the insides of the hives, filling in all the crevices and cracks. With it they also frequently seal on the lid, fill up the holes in the queen-excluding board, fasten the frames to the sides of the hive, and almost close up the entrance. It would seem as if the bees were using the resin for the purpose of preventing the intrusion of enemies; but there are places where the resin is cemented, that still cause some enquiry. There is no apparent reason for this, and the propolis, as the resin is called, causes much trouble to the bee-keepers. Grass-trees usually grow on the poorest of sandy soils, and they are very difficult to transplant from the bush. The seedlings may be grown in sand, and afterwards planted out. The grass-tree is a plant of uncommon appearance when grown as a lawn specimen, which position suits its best. The grass trees growing on the lawns in the Melbourne Botanic Gardens, are growing in good stiff soil, and are thriving well.

Without doubt, the most beautiful, and also the most rare of our lilies is a Mallee and Grampian plant called Calectasia cyanea, or the "blue tinsel lily" or "satin flower." The plant is a low sparse one, and the flower is fairly small, about an inch in diameter; but its striking colour, which is blue lake with a metallic satiny sheen, makes it a plant much sought after. The three sepals which look like petals, and

H. P. Dickins, photo.]

Xanthorrhoea australis, R.Br.
(Southern Grass Tree.)

A. J. Relph, photo.]

Thysanotus tuberosus, R.Brn.
(Bulbous Fringe Lily.)

H. P. Dickins, photo.]

Stypandra glauca, R.Brn.
(Nodding Blue Lily.)

the three petals are all similar in form and colour, and they possess the peculiar "everlasting" form so well known in those flowers so called.

The small white flower called "Early Nancy" is one of the lilies, and is known as Anguillaria dioica.

The fringe lilies Thysanotus, with their purple-fringed flowers, and with a scent like that of chocolate, are widely spread in the springtime.

A fine blue lily, with bright green grassy foliage, is Stypandra glauca, or the "nodding blue lily." With its grass-like tuft of stems and foliage, it gives a nice, informal appearance to any garden plot or border. It will grow in any garden soil, and the old stems should be thinned out to make room for the new growths.

Eustrephus Brownii, the "wombat berry," is a climbing liliaceous plant, with small pink flowers. In the autumn it is covered with abundant clusters of bright orange berries. It is prevalent in the Snowy River district. Unless it is grown in a cool locality, and in good, old, rich soil, the Eustrephus does not berry well under cultivation; but in any situation it makes good growth and foliage, the leaves always being nicely glossy and bright.

There are no true irises in Victoria, but there are several representatives of the Irideae family. The white "butterfly iris," Diplarrhena Moraea, growing in the south and east of the State, is a delicately beautiful flower, with a faint sweet scent. The purple and heliotrope "flag" irises belong to the genus Patersonia; and these flower well in late winter and spring. The irises transplant readily from the wild,

and provided a small ball of earth be taken with the plant, they will grow right away in the garden.

In a climate and country which produces plants of the iris and lily family so insignificant in flowers when compared with other portions of the globe, it is rather surprising to find palms growing naturally. Palms are quite close relations of the lilies.

There is only one native palm of Victoria, Livistona Australis; that is found in two closely-connected localities near Orbost in East Gippsland. The main group of palms is on the Cabbage-tree Creek—the creek so called after the common name of the palms—and the other, which only consists of a few small palms, is on the banks of the Brodribb River. The two localities are only a few miles apart. The main group on the Cabbage-tree Creek is a cluster of fine old and tall palms, the tallest one being considered to be about ninety feet in height. There are only about fifty palms in the locality, and it is fortunate they have been protected by law, and that the land is permanently reserved. The palms were discovered here by the late Baron von Mueller, and it is due to him that the palm tract has been reserved. This palm is well known in gardens and palm collections, and to grow it best, it needs to be placed in a position protected from winds, as its foliage is fairly tender, and if much blown about by the wind, the foliage becomes very ragged and untidy. This palm enjoys a good stiff soil, and may be well fed with old manure. It is not a great success as a house pot plant—although hardy—on account of the spines which are placed along each side of the leaf stem. The

A. J. Relph, photo.]

Diplarrhena Moraea, Labill.
(Butterfly Iris.)

A. J. Relph, photo.]

Patersonia glauca, R.Brn.
(Short Purple Flag.)

warmer the climate or the situation, the quicker this palm grows.

Botanically, flowering plants are first classed under two great divisions. The classification is arranged according to the first leaves which come from the seeds. These seed-leaves are called cotyledons. The first class of plants has two seed-leaves, and are called dicotyledons, which means two seed-leaves; the second have only one seed-leaf and are called monocotyledons. The irises, lilies and palms, as well as orchids, rushes, sedges, and grasses, belong to the latter class.

CHAPTER XIII.

Grasses and Ferns.

NO discussion on the native plants of any country would be complete without some remarks on the grasses and ferns. Taking the grasses first, there are very few species that can strictly be called ornamental. Most of our grasses are useful, and indeed, highly nutritious for stock feed.

Some grasses have other qualities of note. There is the scented grass, Tetrarrhena juncea, which is very fragrant, and which in climbing with its slight wiry stems among the trees or shrubs of Gippsland, often reaches the height of fifteen or twenty feet or more.

Of the reed grasses of our water courses, Arundo Phragmites, which is a near relation of the Danubian or Southern European common bamboo, Arundo donax, and which ornaments the banks of our streams with its brown feathery plumes at Easter time, is a tall decorative species. Poa dives, a tall mountainous and forest grass, of strong and vigorous habit, is also worthy of note. A pretty small-headed grass is Erianthus fulvus, "Brown top," with its tall slender stems, crowned with a golden-brown tuft. It is an ornament for any garden, and is also nutritious for stock.

A dainty form, restricted here mainly to the Mallee, but also found in the Werribee Gorge, is Stipa elegantissima, the "Feather Spear Grass." The

F. L. Reeves, photo.]

Livistona australis, Martius.
(Cabbage Tree Palm.)

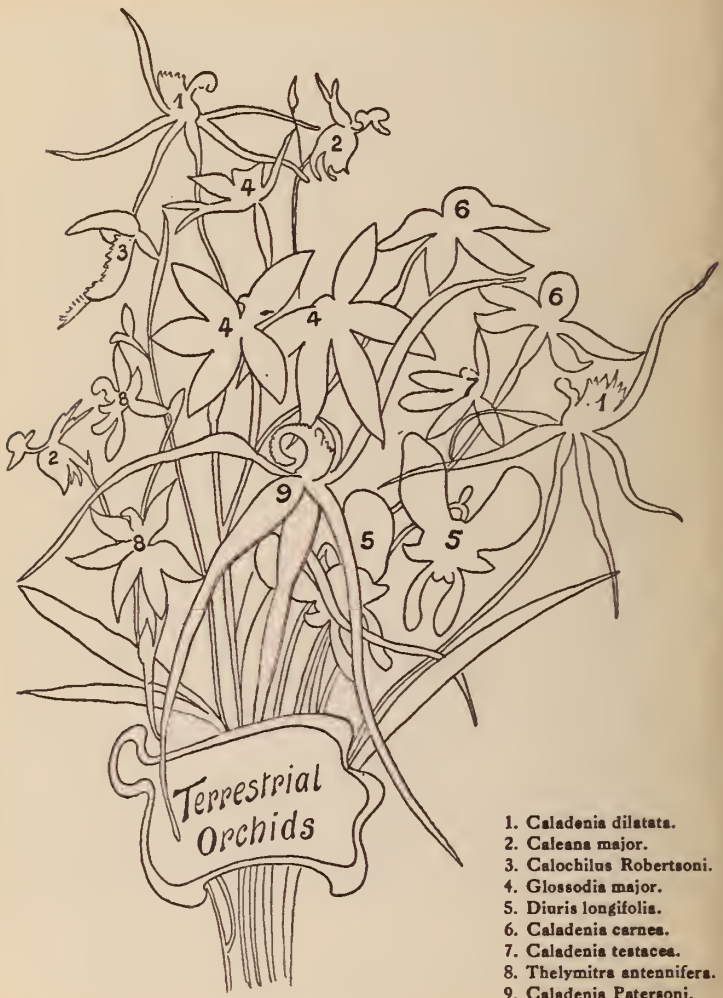
J. A. Sears, photo.]

A Fern-Tree Gully at Warburton.

specific name shows what Labillardiere, the eminent botanist, thought of it when he named it in 1804. Its delicate faintly-lilac plumes, seeming to float in the air, viewed at a short distance would suggest the presence of a fairy cloud. In the Mallee this grass flourishes best when growing amongst the prickly and low branching shrubs. Here, where its young succulent growths are free from stock interference, it reaches up amongst the growths, and is exceedingly graceful and dainty. That this grass grows most successfully under garden conditions, I proved at Shepparton some years ago, growing it intermingled with the previously-mentioned species.

Then there are the ferns! If the rest of our vegetation were all insignificant and unimportant, we would have enough glory, enough beauty, and enough of variation, to talk about and to be proud of in our ferns. What can compare with an Australian fern gully—its majesty and gracefulness, its coolness and joy, its refreshment and charm? There can be nothing like it. The gully shaded by the gums, the hazels (Pomaderris), the wattles, and many other trees and shrubs, is further darkened by the cool dark stems of the tree-ferns, and by their long spreading green fronds—the tree-ferns growing along the watercourse, and even far up the hillside slopes—hundreds of them, all graceful, all beautiful. We see the stream cool and crystal, babbling down the moss-covered stones, which supply coolness and music to the glen.

And then we see the smaller ferns in the undergrowth and among the rocks. There are the water ferns



1. Caladenia dilatata.
2. Caleana major.
3. Calochilus Robertsoni.
4. Glossodia major.
5. Diuris longifolia.
6. Caladenia carnea.
7. Caladenia testacea.
8. Thelymitra antennifera.
9. Caladenia Patersoni.

Terrestrial
Orchids

Lomaria, with their dark green fronds, and the young fronds all beautifully rose-red; the coral and star ferns, Gleichenia, with the feathery graceful foliage; the harsh rasp ferns, Doodia, whose dark green foliage is their redemption; the bracken ferns, Pteris, with their fronds pale green and refreshing; the creeping ferns, Polypodium, often festooning the stems of the tree-ferns and sometimes trailing on the limbs of the trees; and the king fern, Todea barbara. This latter species often attains great size. Many individual crowns spring from the one butt or stem, which assumes with age a many-headed broad form. And then, as if to form a veil hiding all harshness and roughness of the fern trunks, we see the delicate moss-like ferns, Hymenophyllum and Trichomanes, ferns which love and never leave the darkness and the cool moist air.

And, lastly, there is the maiden-hair fern, Adiantum Æthiopicum. Its daintiness is unsurpassable, growing among the rocks or fringing the creek banks with its long delicate fronds, hanging weeping into the very water, as if seeking a sip of nature's nectar, it is one of the most beautiful of all ferns. Adiantum formosum, the black-stem fern of the cool forests and jungles of East Gippsland, is a beautiful, robust species of maiden-hair fern, with fronds often three feet across, on a stem two or three feet in height.

The common tree-fern, Dicksonia Antarctica, is one that follows the creek gullies and slopes. The hill tree-fern, Alsophilia Australis, is more hardy, and more suitable for garden culture. It is a success in good garden soils, especially where clay is absent.

This has prickly stems and much broader foliage. Cyathea medullaris, is a tall species with a narrow trunk, almost jet black. This is not common.

The number of species of various ferns that may be found in one limited area, is almost incredible. On one occasion, at Bell Bird Creek, far away in East Gippsland, I collected forty-four species in an area of little more than one acre. This, of course, is rather in excess of what may usually be found, but one may easily collect twenty species in a fern locality.

F. L. Reeves, photo.]

Clematis aristata, R. Brn.

(Greater Clematis.)

A. J. Kelph, photo.]

Seeds of the Clematis aristata, R. Brn.
(Greater Clematis)

CHAPTER XIV.

A Number of Desirable Plants.

IN a country like this, where Nature is so prodigal of her gifts, it could hardly be expected, in the limits of a popular work, that the whole of our native plants could be described. The difficulty has not so much been to select suitable plants for description, but to choose the most suitable. Even so, I am aware that many have been left out, many that perhaps should have been noticed. A few more desirable ones will be mentioned here, without giving any botanical sequence or relationship.

In the Labiateae or "lip" family, Prostanthera Sieberi and P. rotundifolia, with fine heliotrope-coloured flowers, which almost veil the shrub; our "Christmas bush," Prostanthera lasiantha, with its large delicate white flowers and mottled throat; Prostanthera nivea, the pure white species; and Prostanthera coccinea, a scarlet form from the Mallee, are all notable and desirable shrubs, which own the common name of "mint" bushes. If only someone would bring down from Kosciusko, from the Buffalo, or from Mount Ellery, that uncommon shrub, Prostanthera Walteri—named after Charles Walter, a much revered and lovable old Melbourne botanist, and a collector for many years for Baron von Mueller—and bring it into cultivation, we should have a unique garden plant. With large green flowers, blotched

with bright purple irregular markings, and with good green foliage, it is a very uncommon plant.

Plectranthus parviflorus, which is placed in the same family, may not be known to many by name, but it is frequently grown as a basket plant. Its large, somewhat hairy leaves, purplish on the back, with a pendant habit, make it a decorative plant, and when the large racemes of small delicate pale heliotrope flowers come, its daintiness appeals to everybody. This grows naturally in East Gippsland.

Our violets are small, but of good form, and very floriferous. The common one is Viola hederacea, with small white-and-purple flowers, while Viola betonicifolia is a large heliotrope species, favouring swampy localities.

It is unusual to find a shrub or a small tree included in the violet family or Violaceae. Yet we have one, and it is well named the tree violet. The flowers of Hymenanthera Banksii are unlike a violet, being very small and yellowish. But they are indeed most fragrant, and are usually crowded in sweet scented masses along the stems of the shrub. It is an unusual plant, and being of dense growth, it should make a good hedge plant. It is usually to be found in moist places and along river or creek banks.

The " wedding bush " is a free-flowering heath-like bush, covered with masses of white starry flowers, and growing in sandy soils along the south and east coast. This plant is somewhat impatient of garden conditions, requiring an almost sandy soil, deep, and with a warm sunny situation. It is botanically known as Ricinocarpus pinifolius.

A. J. Relph, photo.] Clematis aristata, R. Brn. var. Dennisae.

A. J. Relph, photo.

Prostanthera rotundifolia, R. Brn.
(Round-leaved Mint Bush.)

The scarlet passion-flower, Passiflora cinnabarina, of East Gippsland, is a quick-growing climber with rather smaller flowers than is usual among passion-flowers. It is rather prolific when in bloom, and the scarlet flowers are distinctive.

Another good and quick-growing climber is Tecoma Australis, which has shining dark green leaves and vigorous clusters of whitish flowers.

We are familiar with the Clematis or "old man's beard," with white starry flowers, and with fluffy white feathery seed-heads—all quick-growing handsome climbers. Clematis microphyllus is the coastal form with small creamy flowers. Clematis aristata is the larger white species with also larger leaves. This is more a lover of the bush or mountain gullies. A variety of this species, named Dennisae, has a brownish red zone in the centre of the flower, which distinguishes it from all others.

Other climbing plants there are, which are not so well known. A number of these are fairly prevalent in East Gippsland, which portion of the State owns a flora more approaching that of New South Wales and Queensland. These plants, as well as many other beautiful ones, grow mainly on low banks and margins of the rivers, extending in to the flat land on each side of the banks. The growth was so luxuriant and dense that these areas received the appropriate name of jungles, and before civilisation and settlers discovered that these jungles claimed the best land, the vegetation was wildly luxuriant. Trees of all species, many unknown to other parts of the State, were crowded in dense masses, and festooning these,

with thick rope-like stems, were many climbers, with an undergrowth of ferns and shade-loving plants, Clematis, Tecoma, Passiflora, Kennedya—plants previously referred to—clambered all over the place, and associated with them were such climbers as Vitis hypoglauca, a true vine, with lobed leaves, evergreen, bright and shining, and with small bitter fruit, and Celastrus australis, another shining foliaged climber, with insignificant flowers, but with large clusters of elegant and massive orange-coloured berries. The vegetation along the river front was always luxuriant, for these and other climbers rambled all over the trees, festooning them down to the water's edge. Here one would often hear the mimicry of the lyre-bird, the clear call of the bell birds, and the sharp crack of the coach-whip bird's call.

Other eastern climbing plants are worthy of remark. Rubus Mollucanus is one of the forms of the raspberry. The fruit is insignificant, and the flowers are not very noticeable, but the foliage at all times is very decorative. The leaves are large, the backs being covered with a thick hairy vestiture, sometimes greyish, but more often a pale rusty brown, and on the young foliage a pinky-grey.

Rubus parvifolius is the small leaved blackberry-like plant, with pink flowers and red raspberry-like fruits, that trails among the logs and scrub in the moister parts of the State.

Contrary to the usual habit of plants of the blackberry section of the rose family, Rubus rosaefolius is not a climbing plant. It sends a number of weak growths from underground runners and suckers, the

foliage being somewhat like the leaves of the rose, the flowers being single and white, about an inch across. The flowers are succeeded by fruits which are as large and highly coloured as a big ripe strawberry. There is scarcely any substance in the fruit, and the flavour is not at all pronounced.

Two plants, Bauera rubioides and Bauera sessiliflora are becoming known; the former has pink flowers and sometimes a white form is found, while the latter has masses of magenta flowers. Both favour moist locations, and the latter is at its best when growing at the margin of a mountain stream.

Lythrum salicaria is a very striking plant to grow along water margins, pond edges, or stream sides. It is a herbaceous perennial, sending hard-wooded stems each year from the root crown from four to six feet in height. The stems are crowned with a fine big tuft of purple flowers, which stand out well from the small foliage. The foliage, before dropping off in the autumn, turns a fine autumnal red colour. It is common throughout Australia in wet places, and is also found in the other Continents.

A number of the hazels or Pomaderris, particularly Pomaderris lanigera, Pomaderris elliptica, and Pomaderris ligustrina, make handsome shrubs with yellow flowers.

Our buttercup, which is Ranunculus lappaceus, is a charming plant to grow, especially if it be planted near a water tap.

Sarcopetalum Harveyanum is a climbing plant, common only in the Snowy River district, with large, clearly veined, ivy-like leaves, rambling profusely

among the stronger stemmed growths. Both the shape of the leaf and its veinings go to form a distinctive and ornamental plant.

Among trees, the "oaks" are distinctive and decorative, the best being Casuarina quadivalis, the "she-oak."

The native pines, Callitris, are handsome trees with cypress-like foliage, dark green and cool-looking. Their timber, too, is of good use for building, in that it resists the ravages of white ants. Callitris cupressiformis, the Murray Pine is the best known.

The "bottle-tree" or Currajong, Brachychiton populneum, a native of the eastern parts, is a fine shapely tree, and one suitable for street planting. Its foliage is shining, pendant and decorative, and its round trunk and fine habit of growth, all contribute to its beauty. This is one of the lace or net-bark trees, which were made use of by the aborigines for their bags and nets. It has thick, soft, fleshy roots, which were dug up and much relished by the natives as food and drink.

Our elderberry tree, which grows in the east, is Sambucus xanthocarpa, the latter name being given in reference to the yellow fruits which hang in clusters like the ordinary elderberry. It is an ornamental tree and very like the black-fruited species mentioned, which is a native of Europe.

The "Mountain Ash"—not the mountain ash of the gum tree family, nor the mountain ash of Scotland, but the one which is so-called and so well known in our southern districts, is Panax sambucifolius—that is a Panax with foliage like the Sambucus or Elder-

berry. This Panax has fine shining pinnate leaves, of firm texture, and much paler underneath. In older specimens it becomes a tree, nicely spreading. It is decorative either as a specimen plant or as a hedge, and is very easily transplanted. It is one of our trees that sucker freely, the suckers growing readily. In East Gippsland there is a variety with dainty and fine fern-like foliage.

Two handsome trees, decorative in foliage, flower and fruit, are Elaeocarpus holopetalus and Elaeocarpus reticulatus. They are native to East Gippsland. The foliage is dark and shining, and the flowers are starry and white, and pale pink in colour. The latter species is especially good, its many flowers almost at times hiding the foliage. This species also carries many fruits, like small olives and blue in colour. The generic name means olive-fruited. These trees belong to the same family as the linden or lime-tree of Southern Europe.

The native beech, Fagus Cunninghami, also has small, handsome, shining dark-green foliage. It, too, produces good timber.

Then there is the "Boobyalla," which is the aboriginal name of a handsome shining-leaved tree, growing in the southern parts of Victoria, particularly near the sea-coast, and botanically known as Myoporum insulare. This handsome tree is hardy and will respond readily to pruning and cutting. Its vigorous growth of leaves, glossy and shining, give great pleasure to all who observe or grow it.

There are ten Victorian species, some of which are dwarf, others being tall shrubs.

Closely allied to Myoporum is the genus Eremophila. The name means a lover of the desert, and was probably given in view of the fact that many of the species are found growing in the drier areas of Australia. Some occur in the southern parts of the State, and other so-called desert species are known to adapt themselves also to the cooler parts. Out of the sixty Australian species, ten are found in Victoria. The foliage of a large number is greyish-green, and in most species it is of a pendant character, hanging gracefully from the leaf stems. Usually the flowers are large and prominent, and in appearance somewhat like those of the mint bushes, to which the Eremophilas are not far related. The corolla or coloured part of the flower, is usually tubular, opening finally with five lobes, rarely four, one of which appears more prominently like a lip. The species maculata (spotted), longifolia (long-leaved), and Brownii, are the more common of the ten. The flowers range in colour from white to dull bluish and red.

An interesting river-bank shrub is Myrsine variabilis, and one closely related to the heaths. Although usually a shrub, it occasionally grows to a height of twenty or thirty feet. The flowers are very small and not notable, but the shrub is striking when the berries are formed. These are small, but they are borne in immense clusters on every leader and lateral growth, being very crowded throughout. The foliage is dark green, small, and shining.

The Pimeleas belong to a family which forms one of the connecting links between the salt bushes and

the legumes. The genus is commonly known by the name of "rice flowers." The bark of all the twenty-one species is tough, but the bark of the Pimelea axiflora is especially so. It is frequently used for tying up parcels and bunches of flowers, while in emergencies it has been used for boot laces: so that in one Victorian district it is known as the boot-lace bush. The flowers of this species are borne in crowded clusters in the axils or angles of the leaf stem, and from that occurrence it takes its generic name. Most of the Pimeleas have their flowers crowded in heads like a daisy, some large and some small. The Victorian species are all white, cream, or yellow coloured, but some species from West Australia are beautifully rose pink in colour. Pimelea ligustrina is perhaps the most decorative species, growing almost as a shrub, with fine white flower heads and bold foliage. Some of the dwarfer species are common as ground herb-like plants, in almost every district of the State, and all are sweetly scented. Pimelea octophylla is a dwarf form with white flowers and with very downy foliage, while the species stricta and curviflora are very pretty herbaceous low-growing plants.

Capparis Mitchelli, the tree Caper, is not common in Victoria, occurring only in the north-west: but it is well known in the warmer States. The flowers are large and conspicuous, white, and with long and many stamens. The fruit is often as large as a passion fruit, rough on the outside, and quite edible and palatable. The seedlings and young plants are usually very spinous, more or less weak stemmed and

of bush-like form. Later, as the plant reaches shrub or tree form its growths become stronger, and almost invariably the spines are absent on the flowering growths.

The mountain pepper, Drimys aromatica, is a shrub with insignificant flowers, and bright shining leaves. The berry clusters are very decorative, being glossy black. A distinctive feature is the red colouring on the leaf-stems and the veins of the leaves, particularly in winter. The foliage is aromatic, and when tasted, is quite hot and pungent. This would be a fine plant for shrubberies. The pepper is found in the mountains and the moister and cooler parts of the State, and extends to Tasmania.

A closely-related plant is the "Bolwarra," or Eupomatia laurina. This is found only in the moist glens and in the river jungles in East Gippsland. This shrub has a semi-climbing habit, assuming strong growth only with age. It has large dark-green shining leaves which, in the young stage, are brightly copper coloured, forming a strong contrast to the older foliage. The flowers are very similar to those of the double tuberose and, in fact, if dis-associated from the foliage, would easily be mistaken for those, having however only a slight fragrance. The fruit is very like a small fig, not quite an inch in length, and quite edible and sweet. This is one of our most distinctive and decorative of plants, and well worthy of a place in any shrubbery, or as a lawn specimen.

The "sassafras," Atherosperma moschata, still closely related to the pepper, is found in the cooler

H. P. Dickins, photo.]

Plecibanthus parviflorus, Willd.

A. J. Relph, photo.]

Viola hederacea, Labill.
(Common Violet.)

glens and gullies of the south and east of the State. It is a fine tree with nicely serrated dark green foliage, the branches hanging down most gracefully. The white flowers, in spring, are most abundant, and with the aromatic principle of the tree, make the whole bush fragrant. An infusion of the bark makes a bitter tonic, which is highly medicinal.

The sundews or Drosera, are interesting plants. The fact that they catch flies and other small insects is wellknown. The soft parts of these insects are digested by the sundew, to supplement the food taken in by the roots. Australia is very rich in these plants, over thirty species being found here alone. There are ten species native to Victoria: one, Drosera glanduligera, with scarlet flowers, all the rest having white flowers. Drosera Whittakeri is the small species that flowers so profusely in spring, the flowers having a sweet fragrance. The climbing sundew, Drosera Menziesii, is interesting and is frequently found in scrub with its weak climbing stems two or three feet in length, crowned with a cluster of white flowers. The forked sundew, Drosrea binata, is our most interesting species. It grows in wet and boggy places, with fairly long leaf stems, the leaves themselves not being much broader than the stems, and branching in pairs, like a two–pronged fork, the forks often being two inches long. The flower stems are often a foot in height, carrying a nice cluster of large white flowers.

The marked variability of the Australian flora is shown by the fact that here we possess three species of Mesembrianthemum or "pigs-face." This

genus of plants, which is largely represented in our gardens, is found more frequently in South Africa. Of the Victorian species, australe and equilaterale are the two large reddish flowered kinds which are found on the seashore as well as in the drier interior. The thick fleshy foliage of the former is round, while in the latter it is triangular shaped. The fruits of these two species were eaten by the aborigines. Mesembrianthemum tegens is the small flowered heliotrope coloured species, which trails along, and flowers so abunantly in springtime, and which was so common in the salty meadows near West Melbourne.

One could go on for some considerable time enumerating and describing the native plants, for they are still numerous and useful, as well as beautiful, but enough has been said to introduce to our readers the flora of which we should be justly proud. Interesting plants may be found in any part of Victoria, and those who wish to become enthusiasts should take a trip in the spring or early summer to some place where civilisation has not yet destroyed the flowers, and they will be well rewarded. Anywhere will do —the plains of the Mallee, the rugged Grampians, the mountains of the north-east, the mountains, gullies, and coastal plains of Gippsland, the banks of the Murray—these will all yield their treasures to those who search for them.

A. J. Relph, photo.] **Bauera sessiliflora, F.vM.**
(Showy Bauera.)

A. J. Relph, photo.]

Ricinocarpus pinifolius, Desf.

(Wedding-bush.)

CHAPTER XV.

Glossary.

THIS glossary, or explanation of botanical words and terms, is purposely made a short one, as many explanations are made throughout the whole of the text.

ALBA, ALBUS, ALBUM: White.

BOTANY: The study of plants.

CLASSIFICATION: In Botany, plants are classified or grouped in sections, according to the possession of similar characters. The vegetable kingdom is divided into large classes, these into smaller, and so on.

ORDER: A large group of plants comprised of a number of genera, all related, is classed as an Order. The word "family" is sometimes used here.

GENUS (plural, genera; adjective, generic): A group of plants, comprised of distinct species, all belonging to the same group.

SPECIES (adjective, specific): A single kind or an individual plant. Thus—a species such as Acacia pycnantha, the Golden Wattle, has for its species or specific name "pycnantha;" and its genus or generic name is "Acacia." It is then placed in the Family or Order of Myrtles or "Myrtaceae." Where the specific name is written or printed, beginning with a capital letter, it shows that the plant has been named after a person or place. Thus, Acacia Mitchelli, is named after Major Mitchell.

FLORA: The whole of the native or indigenous plants of any country.

LONGIFLORA: The use of the word "flora" in combination with another, shows that the specific name describes

the flower: thus—longiflora, means a long flower, as compared with others of the genus, and parviflora, means small-flowered.

TRIFOLIATE: The termination "foliate," or a similar one, shows that the name describes the leaf of the plant: thus, "trifoliate" means three leaves or leaflets; and "longifolia," long-leaved. This is a Latin term.

MONOPHYLLA: The termination "phylla," or a similar one, shows that the name, which is a Greek one, describes the leaf also: thus, "mono"phylla means a single leaf; aphylla, without leaves.

MELANOXYLON: The terminal "oxylon" or "xylon" means wood; and the melanoxylon means blackwood.

PLANT NAMES: The names of plants are given in Greek and Latin, because these are the languages of students of all countries, and thus a botanical name is recognised by a botanist, no matter to what nation he belongs. While common names can only be applied to a specific language; and a plant would require a common name for each language and dialect of the globe.

The personal name which is usually given after the scientific name of a plant, is that of the botanist who published a description of the plant under that name.

The Plant Names Committee of the Field Naturalist's Club of Victoria is doing good work in preparing a standard list of common names for all plants, and already several very comprehensive lists have been issued.

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